

COMMITTEE HEARING  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

In the Matter of: )  
 ) Docket No.  
APPLIANCE EFFICIENCY REGULATIONS ) 04-AAER-1  
RULEMAKING )  
\_\_\_\_\_ )

CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

WEDNESDAY, OCTOBER 13, 2004

10:10 A.M.

Reported by:  
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Jackalyne Pfannenstiel, Presiding Member

Arthur Rosenfeld, Associate Member

ADVISORS and COUNSEL PRESENT

Tim Tutt

John Wilson

Jonathan Blees, Assistant Chief Counsel

STAFF and CONSULTANTS PRESENT

Michael Martin

Gary Fernstrom  
Pacific Gas and Electric Company

Chris Calwell  
ECOS Consulting

Steven Nadel  
American Council for an Energy Efficient Economy  
(ACEEE)

Ted Pope  
Energy Solutions

ALSO PRESENT

Charles Bohlig  
Fisher Nickel, Inc.  
Food Service Technology Center

Mark V. Weaver  
T&S Brass and Bronze Works, Inc.

Mary Ann Dickinson  
California Urban Water Conservation Council

Leon G. Billings  
Hunter Fan

ALSO PRESENT

Noah Horowitz  
Natural Resources Defense Council

Leo Rainer  
Davis Energy Group  
representing Pacific Gas and Electric Company

Alan Gillan  
Coolerado Corporation

John Broadbent  
Ice O-Matic

Matthew Allison  
Scotsman Ice Systems

Richard Caron  
The Moseley Corporation

James Mullen  
Lennox International

Jim Lutz  
Lawrence Berkeley National Laboratory

Karim Amrane  
Air Conditioning and Refrigeration Institute

Wayne E. Morris  
Association of Home Appliance Manufacturers

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Power Integrations, Inc.

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Apple

Emily Clayton  
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## P R O C E E D I N G S

10:10 a.m.

PRESIDING MEMBER PFANNENSTIEL: Good morning. I am Commissioner Jackie Pfannenstiel. To my left is Commissioner Art Rosenfeld. And to Art's left is John Wilson, Art's Advisor. To my right is Tim Tutt, my Advisor. And to his right is Jonathan Blee, Legal Counsel.

And also coming up here to join us is Michael Martin, who is the Lead Staff on this proceeding.

I am the Presiding Member of the Commission's Energy Efficiency Committee. And as I think everybody here knows, the Energy Commission is required, under the Public Resources Code, to adopt standards for appliances that use a considerable amount of energy.

Last year the Commission delegated to the Efficiency Committee the ability to adopt those standards. And then we will bring our proposal to the full Commission.

Several months ago the Efficiency Committee published an informal draft of regulations and an informal draft of the staff report, which were the subject of a Committee

1 workshop in May of this year.

2 We received useful information at and  
3 after the workshop. And we're now in the formal  
4 part of our rulemaking. The formal proposal,  
5 which we referred to as the express terms and the  
6 45-day language, has been published on our  
7 website, along with a later edition of the staff  
8 report. And these documents are the subject of  
9 today's hearing.

10 Should the Committee decide to make  
11 further changes in the express terms we'll publish  
12 another edition which will be called the 15-day  
13 language. In fact, we've already identified some  
14 changes, and so we'll definitely need a 15-day  
15 language.

16 And with the decision to publish 15-day  
17 language the Commission will accept comments at  
18 its November 3rd business meeting. But we intend  
19 to bring the standards to a vote by the Commission  
20 at the December 1st business meeting.

21 So, we look forward today to your  
22 comments, your oral comments today, your written  
23 comments provided either today or in the near  
24 future. And by the end of today we'll discuss a  
25 deadline for submitting further written comments.

1           Now I'm going to turn to Michael Martin  
2     to introduce the staff participation and to  
3     provide general comments from the staff. Tim  
4     Tutt, in the course of today, will help us  
5     organize the presentations and keep us on time and  
6     keep it moving along. We have delegated to Tim  
7     the responsibility to kind of keep, you know, to  
8     monitor the proceedings.

9           We have a large number of appliances to  
10    consider. We have a number of issues in front of  
11    us. There's a lot of information that we're going  
12    to try to cover in a relatively short time.  
13    Unless people are willing to, you know, send out  
14    for dinner and prepare to stay for a couple days,  
15    we really have to be pretty firm on keeping to a  
16    timeframe. So I'm going to ask your indulgence,  
17    even before we begin. We're going to move it as  
18    expeditiously as we can.

19           And we're hoping to give everybody a  
20    chance to say their piece, to be heard, to have  
21    some opportunity to exchange with others and with  
22    us, and then move on to the next.

23           So, with that, I turn this over to  
24    Michael Martin.

25           MR. MARTIN: Thank you very much. And I

1 do remember hearings years ago that went on to  
2 pretty close to midnight, and I have no desire to  
3 repeat it again.

4 PRESIDING MEMBER PFANNENSTIEL: Please  
5 no.

6 MR. MARTIN: Thank you all for coming.  
7 I would like first to make some introductions that  
8 apply to all of the appliances. You'll see on  
9 your agenda that we have divided the groups into  
10 14 groups for discussion. But my initial comments  
11 will be related to all of them.

12 Section 25402(c) of the Public Resources  
13 Code has, since 1975, required the California  
14 Energy Commission to adopt standards for the  
15 energy efficiency of appliances whose use, as  
16 determined by the Commission, requires a  
17 significant amount of energy on a statewide basis.

18 New and upgraded standards must be  
19 feasible and attainable and must not result in any  
20 added total cost to the consumer over the designed  
21 life of the appliance. The added total cost is  
22 obtained by comparing the cost and performance of  
23 a typical model that the consumer would be  
24 expected to purchase the proposed upgraded or new  
25 standard in effect to the cost and performance of

1 a typical model that the consumer would be  
2 expected to purchase without the proposed upgraded  
3 or new standard in effect.

4 Attached to your agenda is a table taken  
5 from the staff report which is on the website.  
6 There is nothing new in here; it's just excerpts.  
7 And the reason that we put these in here is  
8 because in order to determine whether an appliance  
9 needs a significant amount of energy on a  
10 statewide basis, the Commission needs these  
11 numbers.

12 We have had suggestions for improving  
13 these numbers. Manufacturers tend to have more,  
14 sometimes confidential, information that is  
15 available. And we are open to having such  
16 improvements. However, it doesn't affect the cost  
17 effectiveness.

18 On the right-hand side we have put the  
19 simple payback period. In most cases in year. In  
20 one case in days. And compared that with the  
21 design life. And the staff report does indicate  
22 that all the proposed standards are cost  
23 effective.

24 The design life is defined as the  
25 additional cost involved in -- divided by the

1 annual savings. Excuse me, if I could just take a  
2 break a minute.

3 (Pause.)

4 MR. MARTIN: The standards are based on  
5 studies that we refer to as case studies codes and  
6 standards enhancement initiative. And these are  
7 listed on pages 47 and 48 of the staff report.  
8 These were done by contractors for Pacific Gas and  
9 Electric Company. And there are three more late  
10 additions that arrived yesterday that will be on  
11 the website before the end of the week.

12 The staff documents on the website  
13 consist of the notice of proposed action, the  
14 express terms, the initial statement of reasons  
15 and the staff report.

16 As the Commissioner indicated, we will  
17 have 15-day language.

18 A new informal draft is available for  
19 external power supplies and audio and video  
20 equipment which would be the edition we should  
21 discuss today for these products. These were  
22 compiled after discussions with the industry, and  
23 are, in effect, the first draft of the 15-day  
24 language.

25 There was a question that's been brought

1 up about the effective date of new provisions.  
2 The way the standards are currently written they  
3 are effective 30 days after filing with the  
4 Secretary of State unless otherwise stated. This  
5 is a little confusing to most people because we  
6 don't know exactly when that would be. And there  
7 have been suggestions that we should have a  
8 specific calendar date for not only the standards,  
9 but also the reporting and labeling provisions.  
10 We would welcome comments on that subject.

11 The new standards take effect mostly  
12 January 1, 2006; some of them later. This is  
13 based on the date of manufacture.

14 As you look at the list of appliances we  
15 are considering today, you will notice that three  
16 of the items have dropped off since the May  
17 meeting. And four of the items refer to testing  
18 and reporting only. There are none of them that  
19 we consider to be subject to federal preemption.

20 And we have divided the appliances into  
21 13 groups. And we will see whether that's a good  
22 division or not when we see how people want to  
23 discuss on it.

24 The order of the agenda was intended to  
25 clear the issues where less oral input is expected

1 first. And Mr. Tutt, I'm sure, will correct us if  
2 this turns out to be a bad guess.

3 I have, however, committed us not to  
4 discuss external power supplies and audio and  
5 video equipment until after lunch.

6 There's also a handout of written  
7 comments that we have received so far, as of 9:00  
8 this morning, from Dixie-Narco, the Gas Appliance  
9 Manufacturers Association, Hunter Fan Company, the  
10 Plumbing Manufacturers Institute and T&S Brass and  
11 Bronze Work.

12 I would bring to your attention that  
13 there is a new docket number since the publication  
14 of these formal documents. And if you have  
15 documents that you wish to put into the docket you  
16 should make sure that that happens.

17 If there are any questions, general  
18 questions, I'd be happy to answer them now, or try  
19 to answer them now.

20 PRESIDING MEMBER PFANNENSTIEL: Michael,  
21 maybe before we begin the proceeding I will ask  
22 Commissioner Rosenfeld whether you have any  
23 opening comments.

24 COMMISSIONER ROSENFELD: No, just I  
25 guess we'd better get started.

1           PRESIDING MEMBER PFANNENSTIEL: Also, if  
2 anybody isn't familiar with our process, let me  
3 just point out that in the back there are blue  
4 cards for people who want to speak, who intend to  
5 participate orally today. Please fill out a blue  
6 card and they'll be brought up here; we'll  
7 organize them in groups. Thank you.

8           Michael.

9           MR. MARTIN: Okay. And another related  
10 point is a number of the people who were involved  
11 in these case studies are with us today. And I  
12 don't know if any of them have actually filled out  
13 blue cards to make a presentation, but they are  
14 available to respond, which frankly makes me more  
15 comfortable than I would be without them.

16           The first one that I picked out is the  
17 dishwasher pre-rinse spray valves. And the staff  
18 report covers these on page 26. Commercial pre-  
19 rinse spray valves are mechanical valves installed  
20 over a sink that dispense hot water under pressure  
21 to clean food items off of plates and other  
22 kitchen items prior to being placed in the  
23 dishwasher.

24           The average baseline water usage for  
25 pre-rinse spray valves is 3.15 gallons per minute

1 at 60 psi water pressure. The proposed efficiency  
2 standard would reduce the flow rate of these  
3 valves to a maximum of 1.6 gpm while also  
4 requiring the valve to pass a cleanability test.

5 We do have some written comments from  
6 the Plumbing Manufacturers Institute, who I don't  
7 think are represented today. They do have some  
8 technical problems with the cleanability test.  
9 This was developed by the Food Service Technology  
10 Center, and is an ASTM standard. And like all  
11 consensus standards, the revision procedure  
12 continues indefinitely. And though it's a very  
13 good standard, like any other standard, it's not  
14 perfect.

15 I think at this stage I would hand over  
16 to Tim to call out anybody who's involved. I have  
17 to mention that this is one of the shortest  
18 paybacks we've ever had. If you heat the water  
19 with electricity it's a two-day payback. If you  
20 use it with gas it's a little longer. But it  
21 doesn't include the energy embedded in the water.  
22 So it's strictly the energy involved.

23 MR. TUTT: Thank you, Michael. You  
24 stole my thunder that I've never seen a payback on  
25 a measure so low. I'm waiting till we get down to

1 hours in paybacks.

2 MR. MARTIN: I was going to say it's the  
3 lowest ever, but it occurred to me coming in to  
4 work this morning there are some that we have had  
5 before where we could not indicate any connection  
6 between the cost and the efficiency. And that was  
7 actually a zero, which is less than two days.

8 MR. TUTT: Indeed it is.

9 MR. MARTIN: Barely.

10 (Laughter.)

11 MR. TUTT: Thank you, again. The first  
12 person who wishes to speak on this particular part  
13 of the appliance standards is named Charles  
14 Bohling, or Bohlig.

15 MR. BOHLIG: Good morning, thank you.  
16 My name's Charles Bohlig; I work for PG&E's Food  
17 Service Technology Center, located in San Ramon.

18 I developed the standard test method for  
19 the low-flow, or actually pre-rinse spray nozzles.  
20 And reading some of the comments from PMI that  
21 they would like to delete the cleaning time on  
22 section of the proposed regulations and I'm going  
23 to have to disagree with that portion of it.

24 And the reason why we put in a cleaning  
25 time -- and Michael alluded to the, you know, what

1 a slam-dunk this is for commercial food service  
2 for the energy savings, the water savings, and of  
3 course, the reduced sewer cost to an application -  
4 - was to make sure that somebody that wanted to  
5 partake in the California Urban Water Conservation  
6 Council, called rinse-and-save, where they're  
7 going around the state and I think the first  
8 portion of it installed 18,000; I think they're  
9 going for another 17,000.

10 The reason for the cleaning portion is  
11 to get some sort of idea that the pre-spray nozzle  
12 still does useful work for the person doing the  
13 dishwashing. We wanted to make sure that no one  
14 could come in and put a flow-restrictor.

15 And I use the analogy of if you're out  
16 with a garden hose and you don't have your little  
17 spray valve on it, the water comes out, you know,  
18 maybe a foot or two and it hits the ground. You  
19 put your thumb over it and you get a lot of useful  
20 work over it.

21 And so the reason for the cleanability  
22 test portion in the test method was to assure that  
23 the end-users are going to like a product that can  
24 actually get food off the plate.

25 Now, as Michael said, as all things you

1 always try to improve, the cleanability test does  
2 have its flaws, just because of human error. The  
3 Food Service Technology Center has developed over  
4 30 ASTM standard test methods. And every five  
5 years they're always being refined as we go  
6 through things.

7 We would suggest the 26-second cleaning  
8 time with the 1.6 gallon per minute is quite  
9 acceptable; and the 26-second cleaning time is  
10 good because any flow restrictor that would be put  
11 on a high-flow nozzle would be then -- wouldn't  
12 have any cleaning performance.

13 But we're suggesting that the 26-second  
14 clean time would be a pass/fail, as opposed to a  
15 reported 18-second cleaning time or 22. Because  
16 we can see that since it is the manufacturers are  
17 going to be kind of self-policing them on this,  
18 that there's a possibility for abuse or misuse.

19 So we do agree that the tomato sauce  
20 test does have some shortcomings, but at the same  
21 time it does delete those sort of anybody that  
22 wants to come in and install a flow-restrictor.

23 So that's our only comment from the Food  
24 Service Technology Center, is that we keep the  
25 cleanability test in there, but instead of having

1 the reported time, change it to a pass/fail.

2 So, those are our only comments. Did  
3 you have any questions that I can answer?

4 Okay.

5 MR. TUTT: Thank you.

6 MR. BOHLIG: Thank you.

7 MR. TUTT: The next person to speak is  
8 Mark Weaver. Is Mark in the --

9 MR. WEAVER: Thank you, good morning.  
10 I'm with T&S Brass and Bronze Works. We're a  
11 manufacturer of pre-rinse unit spray valves.  
12 Basically one of three manufacturers in the U.S.  
13 that make this type of product. And T&S actually  
14 invented the low-flow pre-rinse unit 25 years ago  
15 or so.

16 And we're very happy that this new  
17 ruling will be a win for everyone it seems. It's  
18 obviously an excellent payback. And very few  
19 issues that we see with it.

20 One that Charles Bohlig just discussed,  
21 I have had the opportunity to talk with Charles  
22 about. We have done extensive testing to this new  
23 ASTM standard at T&S. We also know that Masco  
24 Corporation, Delta Faucets has done extensive  
25 testing. And we've pooled this information and

1 essentially determined what issues there are with  
2 the ASTM standard. And we passed this information  
3 to Charles and Mr. Martin.

4 And as a manufacturer we really have no  
5 major issue with the standard, itself, the ASTM  
6 standard, provided that we do as Charles suggested  
7 and make it a pass/fail, whereby any product that  
8 a manufacturer introduces for this activity can be  
9 looked up on a website and someone can say, yes,  
10 this manufacturer's product with this model number  
11 does, in fact, meet the 1.6 gallon per minute  
12 maximum flowrate, and the new 26-second cleaning  
13 time.

14 So, with that, the input that Mr. Martin  
15 received from the Plumbing Manufacturers Institute  
16 mainly comes from information obtained from all of  
17 this testing that we've done.

18 And we believe that through the normal  
19 course of revising the standard we can correct  
20 some of these minor issues that we see with it.

21 The only other thing that I wanted to  
22 discuss today was comments that T&S Brass  
23 submitted concerning the applicability of the  
24 definition of commercial pre-rinse unit spray  
25 valves.

1           We have had manufacturers and code  
2       bodies have had a number of problems with the use  
3       of the word commercial in the past. We believe  
4       that its use in this case is acceptable from the  
5       standpoint that it excludes kitchen side sprays,  
6       salad sprays, that kind of a spray unit. That is  
7       a residential product and we understand that this  
8       is not intended to cover that type of residential  
9       product. We are specifically talking about pre-  
10      rinse unit spray valves used in commercial  
11      kitchens that are the step prior to putting  
12      silverware and dishes into a commercial  
13      dishwashing system.

14           With that, this is where this program is  
15      going to be successful. This is where you can  
16      clean, preclean these dishes and silverware in  
17      roughly the same amount of time with as little as  
18      half or a third of the water, and much less energy  
19      usage.

20           The issue that led us to submit refined  
21      definition comes from the codes and standards  
22      enhancement initiative that started this off. It  
23      recognizes, and we believe that these numbers are  
24      fairly accurate, there are an estimated 150,000 to  
25      200,000 pre-rinse spray valves in service in

1 California.

2 Of that number, approximately 90,000 of  
3 them, or about half, are used in this type of  
4 application. The other ones that still carry the  
5 name, commercial pre-rinse unit spray valves, are  
6 used for very very different reasons. Primarily  
7 for pot and kettle filling in kitchens.

8 So if the definition remains the same,  
9 this ruling would apply to all commercial pre-  
10 rinse unit spray valves. And what you would have  
11 is roughly half of these spray valves in  
12 applications where someone is being paid to stand  
13 over a pot or kettle two or three times longer to  
14 fill it with zero energy savings, zero water  
15 savings. All of that water will be used in the  
16 cooking situation.

17 So, a simple change to the definition,  
18 we believe, will correct that. And what we  
19 suggest is that the words commercial pre-rinse  
20 unit spray valves, which appear a number of times,  
21 I think five or six times, in the 45-day language  
22 be changed to commercial pre-rinse unit spray  
23 valves that are installed and used in conjunction  
24 with commercial dishwashing and where washing  
25 equipment.

1           There is one other point if there's no  
2       questions about that. Okay. In section  
3       1607(d)(8) of the 45-day language, there is going  
4       to be a requirement for marking the product in a  
5       specific way with its flow rate. We think this is  
6       a good idea. We have this kind of a marking  
7       requirement on many many plumbing products that  
8       are already limited in terms of their flow,  
9       toilets, faucets, things of that sort.

10           What we would like to suggest here is  
11       that because there is a distinction between a low-  
12       flow pre-rinse unit spray valve and a full-flow  
13       pre-rinse unit spray valve that it's used for  
14       other purposes. That this marking requirement be  
15       limited to the low-flow units only. And that way,  
16       someone inspecting a new or updated facility can  
17       look at that pre-rinse unit spray valve; see that  
18       it's used in conjunction with a commercial  
19       dishwashing or where washing a piece of equipment,  
20       and they should be able to see that flow rate  
21       marked on the product.

22           Requiring that kind of a product marking  
23       on other pre-rinse unit spray valves that are not  
24       required to be low-flow is simply an added expense  
25       for manufacturers, and it doesn't do anyone any

1 good.

2 That's it.

3 MR. TUTT: Alternatively you could label  
4 the other ones pot-fillers.

5 MR. WEAVER: Well, the commercial --

6 MR. TUTT: I'm just joking.

7 MR. WEAVER: Well, the definition for  
8 pre-rinse unit spray valve is much older than I  
9 am, so I'm not sure we're going to be able to  
10 change the industries.

11 MR. TUTT: Thank you for your comments.

12 MR. WEAVER: Thank you.

13 MR. TUTT: Next person to speak -- yes,  
14 Michael.

15 MR. MARTIN: I sympathize with this  
16 terminology question, and we will certainly look  
17 into it. However, we do need to bear in mind when  
18 we are setting these standards, that these are  
19 regulations regarding the selling and offering for  
20 sale. And so we can't say when installed and  
21 dishwasher, because that would imply that it  
22 didn't apply when it was sold individually.

23 So, we will certainly look into it, and  
24 see what we can do. We can probably come up with  
25 some compromise solution.

1 MR. TUTT: All right.

2 MR. FERNSTROM: Good morning; I'm Gary  
3 Fernstrom, Senior Project Manager from the Pacific  
4 Gas and Electric Company.

5 The request having to do with pass/fail  
6 for the time should be easy to comply with because  
7 we can't find a requirement in the standards at  
8 present to report the time. It looks to us like  
9 it's already pass/fail.

10 MR. TUTT: Okay. We'll look at that.  
11 The next person to speak is Mary Ann Dickinson.

12 MS. DICKINSON: Good morning,  
13 Commissioner Members. I'm Mary Ann Dickinson,  
14 Executive Director of the California Urban Water  
15 Conservation Council. And I'm here to support the  
16 Commission's proposed standard for the pre-rinse  
17 spray valves.

18 As Charles earlier mentioned, the  
19 Council has conducted a rather large program for  
20 replacement of these pre-rinse spray valves  
21 throughout the State of California. We were the  
22 lucky recipient of a \$2 million grant from the  
23 California Public Utilities Commission, who  
24 awarded us the project based on the energy  
25 savings, as well as water savings, connected with

1 the program.

2 During phase one, which we've just  
3 completed, we've installed 16,896 valves. Those  
4 valves will be supplemented in a phase two project  
5 with another 20,000. So, we estimate that based  
6 on the assumption of roughly 100,000 valves that  
7 are in service for this pre-rinse spray function  
8 in dishwashing in the State of California that we  
9 would already have replaced probably close to a  
10 third or more of those valves.

11 The valves that we are replacing are 1.6  
12 gallons per minute at 80 psi. So, we have become  
13 a form of testing for your standard, in a way.  
14 And what we can do is tell you that we have had a  
15 very high customer satisfaction rate.

16 We estimate 94 percent of those valves  
17 were still in service at the end of the project.  
18 We achieved a savings of about 5.3 million therms  
19 per year and 32.8 million kilowatt hours.  
20 Acrefeet per year was 2940 acrefeet per year. All  
21 at a cost in the water savings world of only \$57  
22 an acrefoot, which is extraordinary. It is one of  
23 the most cost effective programs we have ever  
24 done.

25 Each valve, alone, saves about 156

1 gallons a day. So the water folks love it. And,  
2 you know, we are very interested in making sure  
3 everyone in the state has one of these valves.

4 Just to further supplement the staff's  
5 work, the CPUC total resource cost, which is their  
6 cost/benefit analysis, their evaluation standard,  
7 came up with a ratio of 12, which is again one of  
8 the highest benefit projects they have.

9 So we definitely want to support this.  
10 We have a track record that shows that the devices  
11 are available, that the customers like them, and  
12 that they're very cost effective.

13 I'm very intrigued with the discussion  
14 about the kettle-filling issue. And I just want  
15 to point out that a number of our valves have been  
16 targeted by the CPUC for small, hard-to-reach,  
17 establishments where basically they were using  
18 that valve for all purposes.

19 So, I think we need to be careful in  
20 differentiating those valves from others,  
21 especially where they do get multiple uses.

22 So, if there are any questions I'd be  
23 happy to answer them. I'm going to leave with you  
24 copies of a report that we did on our phase one  
25 program that gives in detail all of our

1 achievements on it. And we'll be doing a similar  
2 report at the end of phase two, which we conclude  
3 sometime in 2006.

4 MR. TUTT: Thank you.

5 PRESIDING MEMBER PFANNENSTIEL: Thank  
6 you for your comments.

7 MS. DICKINSON: Thank you for your work  
8 on this project.

9 PRESIDING MEMBER PFANNENSTIEL: Thank  
10 you for your validation.

11 MR. TUTT: That's all the blue cards I  
12 have on this topic. So, unless anyone else wants  
13 to speak we'll move on to topic number 2.  
14 Michael, do you want to do a brief introduction?

15 MR. MARTIN: This is an item that is  
16 described on page 39 of the staff report.  
17 Commercial hot food holding cabinets are used for  
18 the commercial food service industry primarily for  
19 keeping food at the correct serving temperature  
20 without drying it out or further cooking it.

21 These are electrically powered, free-  
22 standing metal cabinets with internal supports for  
23 holding food trays. The proposed standard is a  
24 maximum standby energy consumption of 40 watts per  
25 cubic foot of measured internal volume.

1           This, once again, is based on an ASTM  
2           standard developed by Charles and his colleagues  
3           at the Food Service Technology Center. We have  
4           required in the previous rulemaking reporting of  
5           performance based on this test method. Now is the  
6           time for a standard.

7           The standard, as set, would allow  
8           insulated cabinets to pass, and uninsulated  
9           cabinets would fail. And when the Energy-Star  
10          people were having a meeting in Chicago to come up  
11          with a specification, the manufacturers were quite  
12          enthusiastic about this. They wanted to get rid  
13          of these uninsulated units.

14          I guess that's all I need to say.

15          MR. TUTT: Thank you, Michael. I have  
16          one blue card for this item, Charles Bohlig,  
17          again.

18          MR. BOHLIG: I don't remember filling  
19          out that card. Unless somebody filled it out for  
20          me, I only had comments on the pre-rinse spray  
21          valves.

22          But I did also develop this standard  
23          test method for hot food holding cabinets. And I  
24          believe the 40 watts per cubic foot reflects what  
25          Energy-Star has for their requirements for hot

1 food holding cabinet.

2 And it does seem like kind of a slam-  
3 dunk for energy savings, in addition to the  
4 additional air conditioning or other kitchen-  
5 cooling air requirements of something. And  
6 there's also food safety related issues, too,  
7 because temperature uniformity and stratification  
8 of uninsulated versus insulated units.

9 So, I'm sure if there are any comments  
10 or things of that nature, further from this  
11 meeting, that we, at the Food Service Technology  
12 Center, will be more than happy to address them as  
13 they come forward.

14 Thank you.

15 MR. TUTT: Thank you. Anybody else wish  
16 to talk about the hot food holders?

17 MR. MARTIN: No. I would mention this  
18 is one appliance that I have never heard anybody  
19 opposing from any source.

20 MR. TUTT: Okay, great.

21 MR. MARTIN: It's kind of obvious.

22 MR. TUTT: Thank you. Well, let's move  
23 on then. The third group of appliances that we're  
24 going to be talking about is traffic signals,  
25 basically pedestrian walk signals, I believe,

1 where L.A. has a jump on us. But, go ahead,  
2 Michael.

3 MR. MARTIN: Pedestrian traffic signals  
4 are internally illuminated units used to give  
5 instruction to pedestrians at intersections.  
6 These signals include a red hand symbol to  
7 indicate that the pedestrian should not enter the  
8 intersection, and a white walking person symbol to  
9 indicate to the pedestrian that it is safe to  
10 cross the intersection. These two symbols are  
11 usually combined in a single housing.

12 The proposed standards would restrict  
13 the energy consumption of the hand symbol to a  
14 maximum of 10 watts at 20 degrees Celsius and 12  
15 watts at 74 degrees Celsius. And the energy  
16 consumption of the walking person symbol to  
17 maximum of 9 watts at 25 degrees Celsius, and 12  
18 watts at 74 degrees Celsius.

19 We previously adopted standards for  
20 traffic signals for automotive control. These  
21 ones are for the pedestrian control. The  
22 standards can be met by LEDs but not by  
23 incandescents. And I'm not aware of any  
24 opposition.

25 MR. TUTT: Thank you, Michael. Does

1 anybody wish to speak to us and provide comments  
2 on this particular appliance?

3 COMMISSIONER ROSENFELD: I was just  
4 going to make an amusing comment. Just that saves  
5 465 kilowatt hours a year, which is the same as a  
6 modern refrigerator. It's really quite  
7 impressive.

8 Michael, somebody who just came back  
9 from some large Oriental city, I've forgotten who,  
10 told me that they've gone in for three symbols.  
11 There's a hand, and then there's a guy walking  
12 across the street, and then for the last five  
13 seconds he starts running.

14 (Laughter.)

15 MR. TUTT: All right. If no one else  
16 wishes to speak on this we'll move on to water  
17 dispensers. Michael.

18 MR. MARTIN: Well, we don't have that  
19 part in the regulation. I don't think the running  
20 symbol is one whose use requires a significant  
21 amount of energy on a statewide basis. At least  
22 in this state.

23 (Laughter.)

24 COMMISSIONER ROSENFELD: I think we're  
25 safe.

1           MR. MARTIN: Good. Okay, water  
2       dispensers are described in the staff report on  
3       page 15. This category of appliances includes  
4       both bottle-type and point-of-use water dispensers  
5       that are free-standing and dispense both hot and  
6       cold water.

7           The proposed standard is a maximum daily  
8       standby loss of 1.2 kilowatt hours. And this is  
9       consistent with the energy-star standard. And I'm  
10      not aware of any problems.

11          MR. TUTT: Thank you. Does anybody wish  
12      to speak to us about standards for water  
13      dispensers?

14          Seeing no hands, I will move on to  
15      evaporative coolers, ceiling fans, whole house  
16      fans and residential exhaust fans. And, Michael,  
17      do you want to give a brief introduction.

18          MR. MARTIN: Yes, indeed. These have  
19      one common feature that they are, in all cases,  
20      provisions that do not include standards, they  
21      just include reporting requirements.

22          Evaporative coolers use the process of  
23      introducing moisture into an nonsaturated air  
24      stream as a means of cooling, combining a fan,  
25      water supply, controls and an evaporative media

1 through which air travels to deliver moist cooler  
2 air.

3 The scope of this product excludes  
4 portable spot evaporative coolers. No minimum  
5 efficiency level is being proposed for evaporative  
6 coolers at this time, the standard proposed for  
7 the testing and certification of this equipment to  
8 the Commission.

9 Ceiling fans and non-oscillating fixed  
10 access fans suspended from the ceiling which are  
11 used to circulate air through the rotation of fan  
12 blades. Ceiling fans may or may not include a  
13 light kit. And in this case, also, no minimum  
14 efficiency level is being proposed.

15 Whole house fans, high air volume  
16 exhaust fans mounted in the ceiling of a residence  
17 for the purpose of providing ventilation and  
18 cooling. In this case, also, no minimum  
19 efficiency level is being proposed.

20 And residential exhaust fans are  
21 permanently installed in bathrooms, kitchens and  
22 utility rooms, either in the ceiling or wall.  
23 Their intended purpose is to remove moisture,  
24 odors, cooking fumes and other objectionable air  
25 from the inside of a home to the outside.

1           This is one of the subjects where we  
2           have written comments from Hunter Fan that are in  
3           front of you.

4           COMMISSIONER ROSENFELD:  What page are  
5           we on for this?

6           MR. MARTIN:  19 and 20 in the staff  
7           report.

8           MR. TUTT:  And we have written comments  
9           from Hunter Fan.  And if you're done, Michael,  
10          then Leon Billings from Hunter Fan is here to  
11          speak to us, as well.

12          MR. MARTIN:  Good.

13          MR. BILLINGS:  Thank you, Madam  
14          Chairman, Commissioner Rosenfeld.  My name is Leon  
15          Billings; I'm a consultant to Hunter Fan.  I will  
16          not read my testimony.  I want to make five points  
17          very quickly, recognizing your time constraints.

18          Number one, Hunter Fan would hope that  
19          there would be a specific effective date for the  
20          labeling provision in the regulation.  If the  
21          labeling provision is effective only with respect  
22          to manufacture we believe that it ought to at  
23          least be January of 2006.  But if you want the  
24          label to be effective with respect to fans that  
25          are on the marketplace, it takes about 18 months

1 to clear from manufacture through the marketplace.

2 So we'd recommend January 1, 2007.

3 Secondly, Hunter Fan believes that fans,  
4 themselves, are conservation devices more than  
5 they are targets for energy efficiency. They  
6 believe that the label that is being proposed  
7 would be better, should provide an opportunity to  
8 educate consumers on the energy conservation  
9 values of fans and suggest how they should be used  
10 for that purpose.

11 I will submit, or Hunter Fan will submit  
12 to the Commission's specific language to  
13 effectuate that alternative.

14 Three, this is more for your  
15 edification. Hunter Fan produces 230 different  
16 models of fans. It estimates it would take at  
17 least six months to complete its testing of its  
18 fans. It has the luxury of having its own fan  
19 testing facility. Other manufacturers do not.  
20 This may be -- time may be a burden on these other  
21 manufacturers. And I just -- Hunter Fan can meet  
22 the deadlines that I've suggested, but other fan  
23 producers may have more difficulty.

24 Four, the Energy-Star standards which  
25 Hunter Fan developed the test method and worked

1 very closely with EPA in developing the Energy-  
2 Star standards. They apply to fans that are  
3 suspended from the ceiling. They do not apply and  
4 there is no test procedure currently available for  
5 so-called low-profile or hugger fans. They  
6 present a different problem of air movement, which  
7 I, as a politician and not technician, have  
8 absolutely no knowledge of what the difference is.

9 In any event, we will submit some  
10 language to the Commission to suggest a way to  
11 differentiate between the low-profile fans for  
12 which there is no test method available, and the  
13 other fans for which a test method exists.

14 Finally, Madam Chair, Hunter Fan  
15 believes very strongly that if California were to  
16 move toward standards for fans, those standards  
17 ought to be expressly articulated separate from  
18 fan lights. In other states, the State of  
19 Maryland, for example, they put the fan light and  
20 the fan, itself, the fan motor, together and have  
21 created a series of problems for the companies.

22 Hunter Fan believes that all lights,  
23 whether they be incandescent or fluorescent,  
24 should be required to meet the same standard, so  
25 that you get across-the-board energy efficiency

1       rather than trying to differentiate and say, well,  
2       use a fluorescent light here you get one thing, if  
3       you use an incandescent here, you get another.

4               Especially because unless a fan is  
5       specifically designed for a fluorescent light, the  
6       next light that the consumer used would be the  
7       cheaper screw-in light. So that's a problem.

8               That's my testimony in a nutshell.

9               MR. TUTT: Thank you.

10              PRESIDING MEMBER PFANNENSTIEL: Thank  
11      you very much for the very positive comments. Any  
12      other questions?

13              MR. BILLINGS: Thank you.

14              MR. MARTIN: Thank you. In terms of the  
15      question as to whether this should be the date of  
16      sale or the date of manufacture, the statute  
17      refers to the date of manufacture. So we don't  
18      have any choice. So this would be a January 1,  
19      2006 manufacturing date that Leon has just  
20      suggested.

21              It also has been forcefully brought to  
22      my attention that we also require time in order to  
23      get these computer programs ready to accept this  
24      input. So I'm more convinced than ever that we  
25      need a specific date, and it needs a reasonable

1 amount of time.

2 As far as the other questions are  
3 concerned, I'd like to call on our consultant to  
4 respond to the question about low profile  
5 equivalent.

6 MR. FERNSTROM: Gary Fernstrom, PG&E. I  
7 just had a quick comment about the lights and the  
8 likelihood that they would be replaced with less  
9 expensive lights. If pin-based compact  
10 fluorescent lamps are used in fixtures, they  
11 cannot be replaced with standard A-base or A-style  
12 Edison-base incandescent lamps.

13 MR. TUTT: Thank you. Yes.

14 MR. HOROWITZ: Good morning. I'm Noah  
15 Horowitz with the Natural Resources Defense  
16 Council. I'd like to respond to Hunter's comments  
17 that seem to be opposed to the labeling  
18 requirement.

19 What California is proposing to do for  
20 ceiling fans, which we support, is provide  
21 consumers information on how much air is the fan  
22 moving and how much power is being used to move  
23 that air. So how many cfm, cubic feet per minute,  
24 and cubic feet per minute per watt. So that's  
25 kind of an efficiency ratio.

1           Energy-Star is a great first start, to  
2       distinguish, these are the most 25 percent  
3       efficient models on the market. Hunter is saying  
4       that's enough, and I respectfully disagree with  
5       that. If a model is not Energy-Star, then even  
6       more important for the consumer to say, does this  
7       move a little bit of air or very little. Is this  
8       a dog or not, if you will. So that's why we think  
9       it's essential for consumers to be able to see  
10      this information.

11           The state took a middle-of-the-road  
12      position here just requiring labeling. We can,  
13      and I believe should, in the future, require  
14      standards that set minimum efficiency levels. And  
15      go after the lighting, which is about 75 percent  
16      of the energy of the fan, but that's for another  
17      day.

18           So, in closing I encourage the state to  
19      continue the labeling requirements as is.

20           MR. TUTT: Thank you, Noah.

21           COMMISSIONER ROSENFELD: I have question  
22      and I don't know whether it's for Noah or for  
23      Hunter. I didn't hear him say -- maybe I was  
24      asleep, but I didn't hear him say that there  
25      shouldn't be a cfm for watts. I thought he just

1 wanted some additional information on the virtues  
2 of fans.

3 MR. HOROWITZ: In the written comments  
4 it was saying that the cfm per watt is not the  
5 best way to go.

6 COMMISSIONER ROSENFELD: Oh, here he  
7 comes.

8 MR. BILLINGS: Yes, we did say that in  
9 the written comments. But, Mr. Chairman, in my  
10 oral testimony I said our interest is, and the  
11 purpose -- the reason we said this in the written  
12 comments is that we thought that the label ought  
13 to stress the conservation benefits.

14 I doubt that my client would have any  
15 objection to having a cfm per watt measure on it.  
16 But they do not believe that the consumer would  
17 understand that as well as they might understand a  
18 message which says if you operate this fan under  
19 certain conditions you'll get significant heat or  
20 air conditioning benefits.

21 COMMISSIONER ROSENFELD: Thanks for  
22 clarifying.

23 PRESIDING MEMBER PFANNENSTIEL: And you  
24 were going to give us some proposed language on  
25 that, how you would suggest that.

1           MR. BILLINGS: I will propose language  
2           on both the low profile issue and on the labeling  
3           issue.

4           PRESIDING MEMBER PFANNENSTIEL: Thank  
5           you.

6           MR. CALWELL: I'm Chris Calwell from  
7           ECOS Consulting. We assisted Noah Horowitz in the  
8           research work at the beginning of analyzing  
9           ceiling fan efficiency.

10          I just wanted to offer a couple of brief  
11          thoughts. In the Energy-Star process that was  
12          proposed for ceiling fans, there was going to be  
13          cfm watts and cfm per watt data provided on each  
14          of the labeled fans.

15          And then moreover, the retailers who  
16          sell the majority of fans in the U.S., which are  
17          Lowe's and Home Depot, had originally committed to  
18          require that the testing and labeling also be done  
19          for the other non Energy-Star fans that they sold,  
20          this was a promise that they did not ultimately  
21          follow through on.

22          So the majority of the fans in the  
23          market today don't provide this information, nor  
24          can you get it from product description sheets  
25          that are in the retail store.

1           And so in effect you might know if a  
2   product is Energy-Star or not, but you might not  
3   know that there are 10 or 20 or 30 percent  
4   efficiency differences among the Energy-Star  
5   qualifying models, and even greater differences  
6   between them and the non Energy-Star qualifying  
7   models.

8           So I think what the CEC is proposing to  
9   do here will be very helpful.

10          My other recollection from the low-  
11   profile, or what they call the hugger fan issue is  
12   I don't think it's a test procedure concern as  
13   much as it is an efficiency one. They are  
14   inherently less efficient because there's no easy  
15   way for air to get in behind the fan when the  
16   blades are so close to the ceiling.

17          And so to have compared them to other  
18   models that are suspended would have effectively  
19   ruled all of them out from earning an Energy-Star  
20   label. So, I think it would be advantageous, in  
21   fact, to report to consumers just how low the air  
22   flow really is from those fans. And would rather  
23   not see them excluded from the CEC's labeling.

24          Lastly, I just wanted to note that  
25   the --

1           COMMISSIONER ROSENFELD: Wait, wait,  
2 Chris. But there's a small difference. I thought  
3 I heard Mr. Billings say that the test procedure  
4 didn't apply. And you're saying you think it  
5 does.

6           MR. CALWELL: Yeah, what you would, in  
7 fact, do, there's a large chamber that is much  
8 taller than the ceiling in a typical house, and so  
9 the hugger fan could still be suspended on a plate  
10 that doesn't allow air flow to get in behind it.  
11 The same as in a home.

12           But really the issue is when it does  
13 that it's air flow is quite low compared to a  
14 suspended fan.

15           The final thought I wanted to offer is  
16 just that the format for labeling, the test  
17 procedure, itself, and the independent labs  
18 outside of Hunter to conduct the test were all  
19 established when the Energy-Star process got  
20 underway a couple years ago. And those labs exist  
21 both in the U.S. and in China and Taiwan, where  
22 many of the fans are made.

23           So I think the capacity to respond  
24 rapidly to the need for more test data is there.  
25 That's it, thank you very much.

1                   PRESIDING MEMBER PFANNENSTIEL: Thank  
2                   you.

3                   MR. TUTT: Thank you, Chris. Michael.

4                   MR. MARTIN: Frequently when we get told  
5                   that a test method is not suitable, it's difficult  
6                   to ascertain whether it is because the test method  
7                   has a scope in it and doesn't include it, or  
8                   whether it actually physically cannot be done.

9                   And if Mr. Billings could, when he sends  
10                  his written data in, make it clear which of these  
11                  is the problem, it would be very helpful.

12                  COMMISSIONER ROSENFELD: I must say I'm  
13                  certainly impressed with Chris' point that if the  
14                  low-profiles are really less efficient than, I  
15                  guess I think the consumer has a right to know  
16                  that.

17                  MR. MARTIN: Yes, but the other side of  
18                  the picture is if we tell them to test to a test  
19                  method that is physically impossible to test to,  
20                  that's not good, either.

21                  COMMISSIONER ROSENFELD: That would be a  
22                  bad thing. I can see that.

23                  MR. MARTIN: And that's what I want to  
24                  avoid.

25                  MR. TUTT: Thank you. Any further

1        comments on this issue?  Yes.

2                MR. RAINER:  I have a comment on  
3        evaporative coolers if we're going to -- are we  
4        going to finish with ceiling fans and go on to the  
5        other fans?

6                MR. TUTT:  Go ahead on evaporative  
7        coolers.  No other comments on ceiling fans?  
8        Evaporative coolers is still part of this group of  
9        appliances, so --

10               MR. RAINER:  My name is Leo Rainer with  
11        Davis Energy Group.  I'm here representing PG&E.  
12        And I have just one comment on the evaporative  
13        cooler test procedure which is a change in the  
14        current listing requirements in section 1606,  
15        table V.  Requires a listing of EER, energy  
16        efficiency ratio, but there isn't a definition of  
17        what that is in the standards.

18                So section 1604(d) which has the test  
19        method needs a definition of energy efficiency  
20        ratio.

21                And there's also been suggestion from  
22        manufacturers that energy efficiency ratio not be  
23        used, since it can be confused with the energy  
24        efficiency ratio being used for compressor  
25        equipment.  And that something specific to

1        evaporative coolers, such as evaporative cooler  
2        energy efficiency or something to differentiate it  
3        so it doesn't be confused with EER.

4                And I submitted some comments directly  
5        to Michael for this, a suggestion for the  
6        calculation of energy efficiency ratio, to be  
7        added to the testimony.

8                MR. TUTT:    Okay.

9                MR. MARTIN:    Thank you.

10               MR. TUTT:    Any questions?

11               MR. GILLAN:    Hi, I'm Alan Gillan with  
12        Coolerado.    I'm here to address the evaporative  
13        cooling.    There's two items.

14               As far as the testing procedure we'd  
15        like to see two different tests, one for direct  
16        evaporative cooling and one for indirect  
17        evaporative cooling.

18               And then the second item would be also  
19        what Leo was just expressing, was the different  
20        acronym for EER.    EER is typically with a vapor  
21        compressor DX system.    And that's very confusing.  
22        I wouldn't want the consumer comparing evaporative  
23        cooling and indirect evaporative cooling with DX  
24        systems.

25               As far as the test procedure, direct

1        evaporative cooling doesn't actually change any  
2        energy in the air, it just adds moisture which  
3        cools the air. Susan Fischer with PG&E was saying  
4        that consumers, basically what they're saying is  
5        well, we're having this type of air conditioning  
6        until we can get real air conditioning. And so  
7        that would be that moisture adding.

8                Indirect evaporative cooling, we're  
9        using the evaporation process to cool a secondary  
10       air stream. And so there's really, although we  
11       lump them into evaporative cooling there's really  
12       two different, complete different products. One  
13       is a moisture-laden cool air and the other is just  
14       cool air.

15               That was my suggestion. Thank you.

16               MR. TUTT: Thank you. Any other  
17       comments on this group of appliances? Then we  
18       should move on to the next group of appliances  
19       which is residential pool pumps and portable  
20       electric spas. Michael.

21               MR. MARTIN: Residential pool pumps are  
22       pool and motor combinations that are used to  
23       circulate and assist in the filtration of swimming  
24       pool water. Design standards are being proposed  
25       for residential pool pumps including a limiting of

1 the pool pump motors service factor, a multiplier,  
2 which when applied to the rated horsepower  
3 indicates a permissible horsepower loading which  
4 may be carried. Requiring two-speed motors, and  
5 requiring that pool pump motor controls are  
6 capable of controlling two-speed pool pump motors.

7 The portable electric spas are  
8 prefabricated, self-contained units that are  
9 electrically heated. The proposed standard is a  
10 maximum standby loss.

11 COMMISSIONER ROSENFELD: What page is  
12 this, again, Michael? What page are you on?

13 MR. MARTIN: The spas are on page 24 --

14 MR. TUTT: Pool pumps are on 22,  
15 Michael.

16 COMMISSIONER ROSENFELD: Thank you.

17 MR. MARTIN: -- and the pool pumps on  
18 22. And then 23 has the numerical data, and 25  
19 has the --

20 MR. TUTT: Okay. Michael, portable spas  
21 are just the ones that you can move around, with  
22 some difficulty, after you've taken all the water  
23 out of them, whereas as opposed to built-in  
24 whirlpool tubs?

25 MR. MARTIN: Well, I do have problems

1 with that portable. But, yes, you're right.

2 (Laughter.)

3 MR. MARTIN: That's what they call them.

4 MR. TUTT: Are there any comments on  
5 this group of appliances? I don't have any blue  
6 cards. Okay. Questions?

7 MR. RAINER: Leo Rainer with Davis  
8 Energy Group. A couple of miscellaneous comments  
9 on some of the language.

10 One is, again I've submitted some  
11 written suggestions on modifications for the test  
12 method for both the spa and the pools, just to  
13 clarify some of the test report language.

14 And then also we would propose adding  
15 one other value to the labeling of pool pump  
16 combinations which is the horsepower of the pump,  
17 itself.

18 And most of it is just clarification of  
19 the test method nomenclature. And, again, I've  
20 submitted that directly.

21 MR. TUTT: Okay, thank you, Leo.

22 MR. FERNSTROM: Gary Fernstrom, PG&E.  
23 I'd just like to note that we're approaching 1.5  
24 million private residential in-ground swimming  
25 pools in state, all of which have pumps which draw

1 an average of about 2 kWh each. So with a third  
2 of these operating onpeak, this represents a  
3 significant opportunity for peak load management.

4 PRESIDING MEMBER PFANNENSTIEL: Thank  
5 you, Gary, noted.

6 MR. TUTT: Okay, any other comments on  
7 this group of appliances? If not, we should move  
8 on. The next group of appliances is unit heaters  
9 and duct furnaces.

10 MR. MARTIN: Unit heaters and duct  
11 furnaces are both non ducted space heaters. But  
12 duct furnaces do not have an integral fan or  
13 blower as unit heaters typically do.

14 The proposed standards for unit heaters  
15 and duct furnaces is a design standard to include  
16 either a power vent or automatic flue damper.

17 MR. TUTT: Thank you. Any comments on  
18 this group of appliances? We don't have any blue  
19 cards up here. Yes.

20 MR. NADEL: Hi, my name is Steven Nadel.  
21 I'm with the American Council for an Energy  
22 Efficient Economy and also here on behalf of PG&E.

23 I would just point out that this  
24 particular proposed standard is identical to a  
25 standard that has been adopted in Maryland and

1 Connecticut. It's also pending in other states.

2 This proposed standard is also contained  
3 in pending federal legislation and has the support  
4 from the trade association, the manufacturers at  
5 the national level. They don't like state  
6 standards, but the basic standard they do support  
7 at the national level.

8 Thank you.

9 MR. TUTT: Thank you, Steven. Any other  
10 comments on this group of appliances?

11 If not we'll move on to group number 8,  
12 large packaged air-cooled air conditioners.

13 MR. MARTIN: This equipment includes  
14 commercial air-cooled air conditioners with  
15 cooling capacities between 240,000 and 760,000 Btu  
16 per hour, which contain all components within a  
17 single unit.

18 The proposed two-tier standard for this  
19 category of equipment is a minimum EER of 10.0 for  
20 the first tier and 10.5 EER for the second tier.

21 MR. TUTT: Any comments on this group of  
22 issues? Michael, can you briefly explain to me  
23 why the standards here are less than the EER  
24 standards for residential air conditioners? Is it  
25 just getting started thing, or some other

1 technical reason?

2 MR. MARTIN: As the units get bigger  
3 their efficiencies tend to get lower. We  
4 currently have standards up to 240,000 Btu per  
5 hour, which we refer to with the archaic term of  
6 20 tons. And so these are the very big units.  
7 And that's the way they go.

8 We do have somebody from the Air  
9 Conditioning and Refrigeration Institute who, I'm  
10 sure, will be prepared to explain that to you, if  
11 you wish.

12 MR. TUTT: Thank you.

13 MR. MARTIN: And he wished.

14 MR. TUTT: Well, I don't need it now.  
15 That's okay, thank you, Michael.

16 COMMISSIONER ROSENFELD: It is  
17 surprising to me.

18 MR. TUTT: Do you want --

19 COMMISSIONER ROSENFELD: No.

20 MR. TUTT: Any comments on this group of  
21 appliances? Seeing none, --

22 MR. BLEES: Tim, --

23 MR. TUTT: Yes.

24 MR. BLEES: -- I'm sorry, just briefly.

25 I was told that somewhere on the street or in the

1 alley behind the Energy Commission there was a  
2 very large, I think a 60 ton, compressor that's  
3 available for inspection. So during the lunch  
4 hour you might want to poke around the building  
5 and check it out.

6 MR. MARTIN: Is this the one that's in  
7 the -- at the side of the building, in the  
8 alleyway?

9 COMMISSIONER ROSENFELD: Yeah, it's in  
10 the alleyway; I saw it. A big truck.

11 MR. MARTIN: Good.

12 MR. TUTT: Okay. No other comments on  
13 this issue we'll move on to group number 9, which  
14 is refrigerators, freezers, beverage vending  
15 machines and icemakers. Michael.

16 MR. MARTIN: Okay. This is one where I  
17 may have lumped too many in together in one  
18 category, but we'll see how it goes.

19 On page 4 we have commercial  
20 refrigerators and freezers with doors. This  
21 category includes commercial package refrigerators  
22 and freezers having either solid, opaque or  
23 transparent doors. There are a number of  
24 different standard levels being proposed,  
25 depending on the specific type of refrigerator or

1 freezer, and which efficiency tier level,  
2 effective date is considered.

3 On page 7 we refer to those without  
4 doors, proposed standards for commercial  
5 refrigerators without doors, also termed open  
6 case, are divided into two groups. Those designed  
7 for the display and sale of bottled or canned  
8 beverages; and those that are not designed for  
9 bottled or canned beverages.

10 The former group serves an identical  
11 purposes commercial refrigerators with transparent  
12 doors that are specifically designed for the  
13 displaying of canned and sale of bottled or canned  
14 beverages.

15 Staff therefore recommends that the same  
16 minimum performance standards be applied to both  
17 types of unit.

18 The proposed standards for all other  
19 models of commercial refrigerators and freezers  
20 without doors are limited to provisions related to  
21 lighting efficiency.

22 The proposed standard for open case  
23 refrigerators and freezers is a high efficiency  
24 standard requiring the use of T8 fluorescent lamps  
25 with electronic ballasts, or a lighting system

1 with equal or high efficacy.

2 Walk-in refrigerators and walk-in  
3 freezers are refrigerated spaces that can be  
4 walked into. Walk-ins can range from less than 50  
5 square feet floor space to several thousand square  
6 feet of floor space, with ceiling heights from 8  
7 to 30 feet.

8 There are a number of design standards  
9 being proposed for walk-in refrigerators and walk-  
10 in freezers. These include automatic door  
11 closers; triple-pane glass with reflected treated  
12 glass or gas-filled for transparent doors; anti-  
13 sweat heater controls for transparent doors;  
14 envelope insulation of at least R28 for  
15 refrigerators and R36 for freezers; electronically  
16 commutated evaporator fan motors and evaporator  
17 fan motors having the same or better efficiency as  
18 in electronically commutated fan motors; or  
19 evaporative fan controllers for shaded --  
20 evaporative fan motors; and ECM type motors or  
21 motors of equipment efficiency for all self-  
22 contained compressor-contained units that are  
23 dedicated to the walk-in cabinet.

24 Refrigerated beverage vending machines  
25 are self-contained appliances with refrigerated

1 compartment designed to hold and dispense canned  
2 or bottled beverages upon payment. The proposed  
3 standard for beverage vending machines is based on  
4 the maximum daily energy consumption with a  
5 formula of 0.005 times C plus 4.76, where C is the  
6 rated capacity in 12 ounce cans.

7 And automatic commercial icemakers are a  
8 type of equipment typically consisting of a case  
9 insulation, a refrigeration system and a water  
10 supply. Some models also include an ice storage  
11 bin, although most systems are installed on top of  
12 a separate insulated ice storage bin.

13 The proposed standards for this  
14 equipment include both maximum energy use in  
15 kilowatt hours per hundred pounds of ice and  
16 minimum water consumption for water-cooled  
17 icemakers in gallons per hundred pounds of ice.

18 MR. TUTT: Thank you, Michael. We have  
19 several blue cards on this group of appliances.  
20 I'm going to start with John Broadbent.

21 MR. BROADBENT: I guess I'm the lone  
22 high tech presenter today.

23 (Pause.)

24 MR. BROADBENT: My name's John  
25 Broadbent. I'm Vice President of Engineering with

1 Ice O-Matic. Ice O-Matic is a major manufacturer  
2 of ice-making equipment. I've got a short  
3 PowerPoint presentation today to give to you. I  
4 have copies of this. Do you all have copies? If  
5 not, I can provide them.

6 MR. TUTT: We don't have copies.

7 MR. BROADBENT: Ice O-Matic is located  
8 in Denver, Colorado; and it's a subsidiary of  
9 Enodis. I'm also joined today by Matt Allison,  
10 who is Vice President of Engineering at Scotsman  
11 Ice Systems in Chicago, also a major manufacturer  
12 of ice-making equipment and subsidiary of Enodis.

13 Rick Caron is also joining us today.  
14 He's a consultant for Enodis and CEO of the  
15 Moseley Corporation. He's done work in the past  
16 with the Department of Energy on ice-making  
17 machines and their energy savings potential.

18 Enodis is the world's largest  
19 manufacturer of food service equipment with over a  
20 billion dollars in sales a year. And by virtue of  
21 owning Ice O-Matic and Scotsman, they're actually  
22 the largest manufacturer of ice-making equipment.  
23 In fact, we sell about 10 percent of our ice  
24 machines in California. That's about 5000 or 6000  
25 units a year.

1 I'm going to start with a little  
2 background, and then we'll get into inside some of  
3 the categories in the new regulations, some  
4 refinements we're going to suggest, and then I'll  
5 summarize our recommendations.

6 We are eager to collaborate with the  
7 Commission in developing a regulation to reduce  
8 overall energy used by commercial icemakers. We  
9 believe the framework for the legislation is sound  
10 and would like to discuss improvement  
11 opportunities in the following areas.

12 We have some insights on categories; in  
13 particular, there's three types of machines that  
14 we'd like to point out may require different  
15 compliance requirements. Those are specifically  
16 narrow, 22-inch wide machines, so-called quiet ice  
17 machines and water-cooled ice machines. We  
18 believe those changes will reduce the potential  
19 for adverse economic impact.

20 And we'd also like to make some  
21 recommendations with regard to refinements in the  
22 implementation to correct -- to make some minor  
23 corrections and clarifications, reducing potential  
24 for adverse energy impact.

25 I'll talk about categories. Basically

1 ice machines come in three standard widths.

2 There's the 22-inc wide machines, 30-inch wide  
3 machines, 48. The 30-inch wide is the most  
4 popular size, with ice-making capacities from 200  
5 to 1000 pounds a day.

6 The 22-inch wide machines come in  
7 basically the same capacity sizes, but they're  
8 narrower. And people buy them because of that  
9 smaller footprint. These machines, the 30-inch  
10 wide, are actually less expensive, but people will  
11 actually pay a premium to get that smaller  
12 footprint.

13 Customers who need a lot of ice buy the  
14 large 48-inch machines.

15 The 22-inch wide, as I said, fill an  
16 important need in the marketplace and they command  
17 a premium price. However, they're inherently less  
18 efficient because they're are narrowed and they  
19 have less room for air flow and smaller  
20 condensers.

21 The proposed regulation eliminates 11  
22 out of 12 models of the 22-inch size, drastically  
23 limiting options for the consumer.

24 Our recommendation is either an  
25 exemption for this type of machine, or different

1 compliance requirements. And I'll show exactly  
2 what I mean in a minute here.

3 We believe that there's a need for a  
4 subcategory for 22-inch wide machines because they  
5 are inherently less efficient. And there's  
6 actually precedent in the regulation for a  
7 subcategory, self-contained air-cooled units do  
8 have a subcategory, primarily because they are  
9 less efficient.

10 This graph shown here shows all the  
11 different models; they're air-cooled. On the  
12 bottom here it's ice-making capacity, pounds per  
13 24 hours. On the vertical axis is the energy  
14 consumption in kilowatt hours per hundred pounds  
15 of ice.

16 Okay, and the solid line here represents  
17 the new California standards. Machines that fall  
18 below the line pass the standard; machines that  
19 fall above the line fail.

20 Now on this graph it really encompasses  
21 all the different widths of ice machines. But if  
22 you separate out the 22-inch wide ones, what you  
23 see is there's only one unit that passes. Now I  
24 know this line was drawn to pass about 20 percent  
25 of the machines and about 80 percent of the

1 machines are designed to fail with this new  
2 standard. However, for 22-inch machines only 8  
3 percent pass.

4 What we'd like to suggest is that the  
5 line be changed slightly to allow the 20 percent  
6 to pass for this category of machine, as shown by  
7 this dotted line here.

8 The next category I'd like to talk about  
9 is remote-cooled ice machines. These are ice  
10 machines where the icemaking head is indoors or  
11 inside the restaurant, and then there's a  
12 condensing unit that sits outside the restaurant.  
13 And there's some advantages to this type of system  
14 in that the heat gets exhausted outside, as well  
15 as the noise being outside, the noise of the fan  
16 being outside.

17 Now there's a subcategory of remote-  
18 cooled ice machine which is so-called quiet  
19 machine, where the compressor and condensing unit  
20 are located outside. And you still make the ice  
21 inside, but all the noisy heat-generating parts  
22 are outside. So what you've done is moved all the  
23 noise outside, the heat's outside, the ice-making  
24 head, itself, is more compact, which facilitates  
25 cleaning of an ice-making dispense which typically

1 sits underneath it. And it also makes it easier  
2 to do it electrically. You can just plug it into  
3 a 115 volt outlet rather than needing a separate  
4 circuit.

5 The interesting thing about this type of  
6 machine, it's relatively new and it's been  
7 pioneered by McDonald's and Taco Bell. They're  
8 currently requiring this type of machine in their  
9 restaurants. The thing that they're after is  
10 quieter dining experience.

11 So we know this type of machine fills a  
12 need in the marketplace. The quiet units,  
13 however, are inherently less efficient. This is  
14 because you've separated the compressor from the  
15 evaporator or ice-making part of the ice machine.

16 The proposed regulations eliminate all  
17 quiet type models with production over 850 pounds  
18 a day, eliminating nine model families and  
19 creating an adverse impact to the consumer. Our  
20 recommendation in this case is exemption for this  
21 type of machine or provide different compliance  
22 requirements for quiet units. Again, I'll show  
23 you what I mean here.

24 This graph shows all remote units, and  
25 again the line was drawn to pass about 20 percent

1 of the machines, and 80 percent fail. However, if  
2 you just look at quiet-type machines what you see  
3 is above this 850-pound-a-day range there are no  
4 quiet units that pass. And these units are  
5 actually the ones that Taco Bells and McDonalds  
6 want, the higher capacity quiet units. And what  
7 this regulation will do is it will make it so they  
8 can't buy those machines.

9 What we'd like to recommend is that the  
10 line for this subcategory of quiet machine be  
11 moved up to provide some options for people who  
12 want quiet machines in these larger size ranges.

13 Third category is water-cooled ice  
14 machines. Water-cooled ice machine uses water to  
15 dissipate the heat that's created during ice  
16 making. They're very quiet. They require the  
17 least amount of maintenance. And most  
18 importantly, they're the most efficient type of  
19 ice-making machine.

20 However, the proposed regulation would  
21 create an adverse impact by forcing consumers to  
22 switch from water-cooled units to less efficient  
23 air- or remote-cooled units when they need an ice  
24 machine that's bigger than 1300 pounds a day. Our  
25 recommendation in this case is to modify the

1 energy consumption regulation for water-cooled  
2 units.

3 Here's another graph. This is water-  
4 cooled units. And even though these are very  
5 efficient machines, there's no other machines that  
6 have a kWh this low, even so over 1300 pounds none  
7 of them pass. So what this means is if you're a  
8 consumer that needs a machine in this size range,  
9 water-cooled is not an option. So you have to  
10 look at most likely a remote-cooled unit.

11 Now, remote-cooled units, the guideline  
12 for kWh is actually up here. So in effect what  
13 you'll do is you won't be able to buy a machine  
14 down here in a water-cooled, you'll actually have  
15 to buy a less efficient remote-cooled unit. And  
16 the difference can be as much as 30 percent.

17 We don't think that's a good idea, and  
18 so we'd like to recommend that there be a new line  
19 drawn on the regulations to allow these higher  
20 capacity, high efficiency water-cooled units to  
21 pass the regulation.

22 Next I'd like to talk about a few minor  
23 corrections that we'd like to suggest to the  
24 regulation. First, the definition of commercial  
25 icemaker. As it stands right now there is not a

1 clear definition. I know that the regulation was  
2 drawn up really to apply to cube-type icemakers.  
3 But because it doesn't say that, it implies that  
4 flakers are included.

5 Now flakers are very energy- and water-  
6 efficient, but they are not rated by ARI, so  
7 there's no data available on them. Because of  
8 that this regulation would preclude the sale of  
9 those type of machines. In fact, because they are  
10 more efficient we think that California should  
11 look at providing incentives for people to  
12 actually switch to flake-type ice machines.

13 There's also a question about whether or  
14 not commercial icemaker refers to residential or  
15 very small ice machines, or industrial sized ice  
16 machines, which are very large. We don't think  
17 that's what you want, so our recommendation is  
18 that the definition be commercial cube ice  
19 machines with capacities between 50 and 2500  
20 pounds per 24 hours. This would eliminate flakers  
21 and would also eliminate the small, under-50-pound  
22 residential machines, and the over 2500 pound  
23 industrial machines.

24 We also think it would be good for  
25 California again to consider some way to benefit

1 from the higher efficiency of flake ice machines.

2 Next there's a term in the regulations  
3 called H, which is used to calculate the maximum  
4 energy use. In the regulation it's stated as H  
5 equals the harvest rate in hundreds of pounds per  
6 24 hours. Unfortunately, that definition results  
7 in all units passing the regulation, which again  
8 was not the intent. We recommend that that  
9 definition be changed to H equals harvest rate in  
10 pounds per 24 hours.

11 There's a term water use in the  
12 regulation that is not clearly defined. It's not  
13 clear if it means the water that's used to  
14 actually make the ice, which is the potable water;  
15 the condenser water that's used; or both. I  
16 believe the intent was that it would just refer to  
17 condenser water only, and it should be changed to  
18 make that clear.

19 One last thing. Under the proposed  
20 regulations it's possible to convert what would  
21 normally be a machine that would fail the  
22 regulation into one that would pass simply by  
23 restating its capacity.

24 A manufacturer can understate -- and  
25 this is okay with ARI as it stands today -- can

1 understate the capacity of a machine by any amount  
2 without violating any ARI regulation. So, for  
3 example, an Ice O-Matic model ice-520 has a rated  
4 capacity of 368 pounds a day. At that capacity  
5 the calculated maximum energy is 7.1 kWh. The  
6 machine actually uses 7.5, so it would not pass  
7 the regulation. However, if I were to say to ARI,  
8 you know, in fact that machine is only supposed to  
9 make 320 pounds a day, that calculated maximum  
10 energy increases to 7.5 and now the machine  
11 passes. And all I did was tell them that it  
12 actually made less than it really does.

13 We don't think that's the intent of the  
14 regulation and so we're recommending that that  
15 parameter be changed so that the tested capacity  
16 must be within plus or minus 5 percent of the  
17 stated capacity.

18 And just in summary, we're recommending  
19 some minor clarifications and corrections. The  
20 term H, the definition of water use, the  
21 definition of commercial icemaker should be  
22 changed. And then we're recommending to reduce  
23 adverse impact, providing a different compliance  
24 requirement or exemption for 22-inch wide  
25 machines, so-called quiet ice machines, water-

1       cooled machines, and again stipulating that the  
2       tested capacity be within plus or minus 5 percent  
3       of stated capacity.

4               That's the end of my presentation.  If  
5       you have any questions I'll be glad to take them.  
6       If not, thank you very much for allowing me to  
7       present.

8               PRESIDING MEMBER PFANNENSTIEL:  I don't  
9       have any questions.  I was just going to thank you  
10      for the information you provided.  I think it was  
11      quite helpful to us.  I was going to ask Michael  
12      if he had comments, response back.

13              MR. MARTIN:  Clearly we have some  
14      editorial corrections, but I sense that our backup  
15      team here will have some more things to offer on  
16      the more substantive changes suggested.

17              COMMISSIONER ROSENFELD:  I'd just like  
18      to ask Mr. Broadbent, this is sort of interesting  
19      that the flakers are more efficient than the  
20      cubes.  When you stop to think about it, it makes  
21      a lot of sense.

22              When I get my cold drink I don't give a  
23      darn whether it has flaked ice or cubed ice.  What  
24      can we do to move the industry into providing  
25      flakes?

1           MR. BROADBENT: I think some -- well,  
2           I'd like to suggest that we have some incentives  
3           for people to use flake ice. Again, as it stands  
4           right now, ARI does not rate flake ice machines,  
5           so it's hard for people to really compare them  
6           head-to-head.

7           I know we have a representative here  
8           today from ARI. We can probably look at coming up  
9           with standards for flake ice machines so everybody  
10          can understand what the energy impact is of flake  
11          ice machines.

12          COMMISSIONER ROSENFELD: Did you say the  
13          difference is something like 30 percent?

14          MR. BROADBENT: No, that was on water-  
15          cooled units going to remote. A flaker, it's  
16          probably less than that, but it's certainly more  
17          efficient. It depends a little bit on the machine  
18          in question.

19          COMMISSIONER ROSENFELD: Very  
20          interesting, thanks.

21          PRESIDING MEMBER PFANNENSTIEL: Steve --

22          MR. FERNSTROM: Gary Fernstrom, PG&E.  
23          Commissioner Rosenfeld must know, but I don't, why  
24          is the flaker more efficient than the cuber?

25          COMMISSIONER ROSENFELD: Because ice

1 isn't as good a conductor as a piece of copper.

2 MR. BROADBENT: Actually the reason that  
3 flake ice is more efficient is that it's made in a  
4 continuous process. Cube ice is actually made in  
5 a batch process where you freeze a bunch of cubes,  
6 and then you melt them free of the evaporator.

7 A flake ice is made continuously and the  
8 ice is formed in a very thin layer and scraped  
9 off. And because it's very thin it doesn't  
10 insulate very much, and it's a very efficient  
11 means of making ice.

12 MR. FERNSTROM: Thank you.

13 PRESIDING MEMBER PFANNENSTIEL: Steve.

14 MR. NADEL: I'm Steve Nadel with the  
15 American Council for an Energy Efficient Economy  
16 working with PG&E. I've talked to John about a  
17 number of these things. I've provided some  
18 comments to Michael Martin before.

19 I wanted to briefly address the  
20 different suggestions that he has. In terms of  
21 the minor corrections, the first two I agree with  
22 him. We need to correctly define H. There was an  
23 error in how the draft regulations were put  
24 together. He is right on that.

25 Likewise in defining water use. Yes, it

1 is condenser water use; and I've suggested to  
2 Michael some particular edits to address that.

3 In terms of the definition of commercial  
4 icemaker, I agree with John that some improvements  
5 are needed. I'm not sure I'd quite go as far as  
6 he did and probably the simplest thing is for me  
7 to talk offline with him and maybe we can come up  
8 with something together to recommend.

9 In terms of the three categories he  
10 recommends, let me go down each of them briefly.  
11 In terms of the 22-inch wide units, these are  
12 generally less efficient but there is one product  
13 that meets -- there are relatively few products,  
14 so if we only had two products we'd effectively be  
15 at the 22s, so partly we're dealing with a very  
16 small sample size.

17 In general, the CEC has been very  
18 reluctant to set up special categories for less  
19 efficient product classes if it's possible to meet  
20 them. So one of my questions for John might be is  
21 it possible, maybe with a little bit more time, to  
22 actually bring the 22-inch wide units into  
23 compliance, given the fact that we already have  
24 one. And if we have a second, we're at the 20  
25 percent.

1           MR. BROADBENT: That's probably  
2 possible. You know, I hate to say for sure. But  
3 with some more -- you know, we haven't had a lot  
4 of time to work on this, but with some more time  
5 it's possible.

6           MR. NADEL: Okay. Regarding the quiet  
7 units, there are quite a few quiet units up to 850  
8 pounds that do meet the proposed standard. Most  
9 of them are a new series, it's called the S  
10 series, by a major manufacturer. They haven't yet  
11 come out with any S series above 850.

12           So a key question that both John and I  
13 have been trying to get answers about, and they  
14 haven't been responsive, is do they plan on coming  
15 out with S series for the larger models which  
16 would be likely, although not guaranteed to  
17 comply. Most of the larger models are an older  
18 series that are less efficient.

19           So we're trying to figure out whether  
20 it's just the fact that the -- the fact that no  
21 models comply have to do with technical  
22 difficulties, or it just has to do with the fact  
23 that a lot of these models are old and they're  
24 ready for updating.

25           So I think we both need to do a little

1 bit further work on that to try to clarify that.

2 In terms of the water-cooled units, I  
3 just learned about this one this morning and  
4 quickly booted up my laptop to check about how the  
5 original standard was set. What the proposed CEC  
6 standard is is based on the Consortium for Energy  
7 Efficiency specification developed a few years  
8 ago.

9 Well, when the Consortium for Energy  
10 Efficiency developed that spec there was actually  
11 a, I think it was like a 1370 pound unit that did  
12 meet the spec. There were actually two of them. I  
13 looked at the latest directory and one of them  
14 appears to have been discontinued and the other  
15 re-rated. I'd like to check back with that  
16 manufacturer on what's going on.

17 That's why the difference. The question  
18 is if there were reasons that model's no longer  
19 available, or they had it re-rated, then probably  
20 some adjustments are needed. If it's more, yeah,  
21 we could do it, but we saved \$2 by changing a  
22 component, then maybe a change is not needed.

23 I need to check further, but I thank  
24 John for pointing out that there has been a change  
25 since this was originally developed, and we need

1 to make sure that any proposed California standard  
2 will work based on current technologies and  
3 current models. So I'll have to get back to you  
4 on that one.

5 Oh, and on the last one, yes, I agree  
6 with him that we don't want to have gaming by  
7 effectively under-reporting capacity. And I've  
8 also suggested to Michael particular words to help  
9 address that.

10 So, all in all, I thank John for raising  
11 all these issues. I agree with him I'll say in  
12 the majority. On a few of them we need further  
13 information and perhaps on the 22-inch, maybe with  
14 a little bit more time we can make this work.  
15 Time as in more time for compliance.

16 Thank you. And I'm happy to take any  
17 questions, either from the Commission or if John  
18 has anything to add here.

19 COMMISSIONER ROSENFELD: I think between  
20 the two of us you've made a very clear convincing  
21 presentation, so thank you.

22 PRESIDING MEMBER PFANNENSTIEL: Yes,  
23 thank you, both. I think that it worked well.

24 MR. TUTT: Thanks, Steve. One question.  
25 When you say you'll have to get back to us on some

1 of these issues, how does that affect the process  
2 from here out?

3 MR. NADEL: As I understand it you have,  
4 the 45-day comment period goes for another couple  
5 of weeks, so it would be very much my hope to get  
6 back within that timeframe.

7 MR. TUTT: Thank you. Any other  
8 comments on icemakers?

9 MR. CARON: Good morning, my name is  
10 Rick Caron, and I was Managing Director at Arthur  
11 D. Little in 1996 when Arthur D. Little did the  
12 baseline report on ice machines.

13 And at that time these compact units and  
14 quiet machines were not as popular as they are  
15 today. So, I just wanted to appear here to  
16 reinforce how important those two categories are  
17 to the food service industry in general.

18 There's a lot of non traditional  
19 downsized restaurant formats. I'm currently  
20 running a business where we design those  
21 restaurants. And those two models are of  
22 particular importance to the industry today.

23 Thank you.

24 PRESIDING MEMBER PFANNENSTIEL: Thank  
25 you for your comments.

1           MR. TUTT: Any other comments on ice  
2 machines?

3           MR. ALLISON: Hi, I'm Matt Allison with  
4 Scotsman Ice Systems. A couple comments I'd like  
5 to add. Scotsman also has models in its lineup  
6 that could be derated to come into compliance with  
7 the standards. I want to point that out, that  
8 it's not just Ice O-Matic, but it's Scotsman. I'm  
9 sure it's every other manufacturer on the market,  
10 also.

11           The water-cooled machines that do not  
12 pass over 1300 pounds, and the adverse impact of  
13 that, I also wanted to point out that if customers  
14 are forced to switch to self-contained air-cooled  
15 machines, or in the worst case, remotes, their  
16 installation costs are also much much higher with  
17 the remote than they are with the typical self-  
18 contained machines. Hundreds of dollars more.

19           There's some comments on flaker or  
20 nugget machines and I never really heard anybody  
21 say exactly how much more efficient they are, but  
22 I can comment on the Scotsman product line, that a  
23 comparable nugget or flaked ice machine compared  
24 to a cube ice machine actually is a 35 percent  
25 less electricity. So it's a substantial

1 improvement, very substantial improvement.

2 And there's also a lot of interest in  
3 the food service industry right now about nugget  
4 ice. There's been some studies done where places  
5 have compared cube ice to nugget ice and they  
6 actually find that their soft drink sales actually  
7 increase when they offer nugget ice as a choice to  
8 cubes.

9 So there's a lot of interest in the food  
10 service industry. And I think there's a lot to be  
11 gained.

12 MR. TUTT: Is nugget similar to flake,  
13 then?

14 MR. ALLISON: Yes, it is. Actually, the  
15 process for making the ice is very similar. The  
16 only difference between a flake ice and nugget ice  
17 is the ice, as it's scraped out of the cylinder as  
18 John described earlier, is compressed a little bit  
19 more, so it's a little bit more of a cylindrical  
20 shaped, about a half-inch long.

21 And the final point I'd like to make is  
22 Steve Nadel talked about the age of the quiet  
23 machines that are on the market, and maybe they're  
24 new and they haven't had the time to be upgraded  
25 yet.

1 I can speak for Scotsman machines, in  
2 that larger size category, over 850 pounds, we  
3 launched our first models in that category less  
4 than a year ago, which is last December. So our  
5 machines are very new in that category, and  
6 obviously they don't comply with the proposed  
7 regulation. I think our competitor, there's only  
8 one other competitor on the market that produces  
9 those types of quiet machines today, and their  
10 first machines were launched I want to say two or  
11 three years ago. And that's pretty infantile in  
12 the ice machine market, so.

13 Those are my comments. Questions?

14 MR. TUTT: Any other comments on ice  
15 machines?

16 MR. BOHLIG: Charles Bohlig, the Food  
17 Service Technology Center. There's two things I  
18 just wanted to clarify, of the importance of the  
19 language. And that's the water usage of the  
20 machine.

21 There's two types; there's the condenser  
22 water and then there's also how much water it  
23 takes to make the ice.

24 And to give you a little idea, and it  
25 depends where an ice machine is located to the

1       quality of the water.  When ice is made -- say if  
2       you're going to make ice at home in your ice tray,  
3       you take water out of the tap; you pour it in  
4       there; and you freeze it.  All the impurities from  
5       the ice go to the center of the cube, so when  
6       you're wondering what the little crystallizing is,  
7       that's the impurities.

8               When ice is made on a traditional cuber,  
9       the water runs over a plate which makes the ice,  
10      all the impurities drop into like a little trough.  
11      And as these machines harvest the ice, that water  
12      is purged from the system.  And the minimum amount  
13      of water to use to make 100 pounds of ice is 12  
14      gallons.  And I've seen machines that will use up  
15      to 40 gallons to make 100 pounds of ice.  So  
16      there's some importance to keep those two  
17      separated.

18             And then also to you comment about  
19      flakers being very energy efficient.  Yes, they  
20      are.  But there's those impurities in the water  
21      that may alter people's beverages.  I know if you  
22      go out to order an expensive drink, if anybody  
23      drinks here, -- maybe after this --

24             (Laughter.)

25             MR. BOHLIG:  -- that having pure ice

1 cubes is very important. So, keeping those units  
2 separated is, I think, very important to the  
3 commercial food service industry for product  
4 quality.

5 COMMISSIONER ROSENFELD: I guess my  
6 comment is we drink the damn water anyway, so why  
7 should I really worry whether it thaws in my mouth  
8 or it never was frozen.

9 MR. BOHLIG: It's a valid comment. And  
10 I just know that if I have an expensive bottle of  
11 something that I certainly don't want -- the  
12 chemicals at the end taste influencing so much or  
13 watering it down quite a bit. So there's a little  
14 personal side to that. Sorry.

15 PRESIDING MEMBER PFANNENSTIEL: It  
16 depends, Art, on whether you're drinking it with  
17 good scotch or not.

18 COMMISSIONER ROSENFELD: I get the  
19 message.

20 (Laughter.)

21 COMMISSIONER ROSENFELD: But that is  
22 pretty shocking. You say that you can throw away  
23 up to three-quarters of the water.

24 MR. BOHLIG: Yeah, in the harvest. And  
25 it has to -- I mean fortunately certain water

1 districts have very good water quality and they  
2 can adjust those purge water timers to maybe 15  
3 seconds.

4 Other areas that don't have good water  
5 quality would be up to 45 seconds. And you're  
6 trying to get all those impurities out. And that  
7 has a lot to do with machine maintenance and how  
8 often the machines break down and things of that  
9 nature.

10 And since these numbers are self-  
11 reported by the manufacturers, there's a bigger --  
12 once again, kind of like spray valves, there's a  
13 possibility for manufacturers to be less than  
14 honest, saying we test it and install it this way.  
15 But when the actual installer puts the ice machine  
16 in, and if they know that they have bad water  
17 quality and may not -- the end user didn't buy a  
18 good filtration system, they may crank that purge  
19 water timer up to the maximum amount.

20 So what is reported versus what is  
21 actually happening in the field can be two  
22 different items. And it kind of goes back to  
23 making sure that the definition of water usage is  
24 separated.

25 COMMISSIONER ROSENFELD: Thanks.

1 MR. TUTT: Thank you. John.

2 MR. BROADBENT: Those last comments were  
3 correct. Actually the cube ice machine typically  
4 takes about twice as much water, it uses twice as  
5 much water as it actually spits out in ice. So,  
6 as he said, it takes 12 gallons to make 100 pounds  
7 of ice. You probably use about 24 gallons.

8 Now, the really small, inefficient  
9 machines may use up to 40 gallons. But that's  
10 rare.

11 Now, a flake ice machine will use the  
12 same amount of water as it makes in ice. So if it  
13 takes in 12 pounds of water, it's going to put out  
14 12 pounds of ice. There's no water wasted.

15 COMMISSIONER ROSENFELD: I've just been  
16 completely converted to flakers.

17 MR. BROADBENT: Okay. And the other  
18 thing about flakers and the nuggets is that they  
19 are pretty good for soft drinks, you know. For  
20 scotch, you know, the high-purity, better-tasting  
21 ice works better. But for soft drinks, I know at  
22 Sonic they use nugget ice exclusively now because  
23 people like the soft chew of it, and it cools the  
24 drink off very quickly.

25 COMMISSIONER ROSENFELD: Thanks.

1 MR. TUTT: Thank you.

2 COMMISSIONER ROSENFELD: Scotch on  
3 flakes.

4 (Laughter.)

5 MR. TUTT: A subcategory for scotch.

6 MR. BLEES: As the lawyer I'd like to  
7 point out that empirical research is always the  
8 best.

9 (Laughter.)

10 MR. MARTIN: You can see why I have  
11 great pleasure in serving on the Food Service  
12 Technology Center's Advisory Panel.

13 (Laughter.)

14 MR. MARTIN: And look forward to their  
15 meetings. We have one coming up pretty soon. And  
16 we take our research seriously. And have a great  
17 time doing it.

18 MR. TUTT: Thank you, Michael. Any  
19 other comments on icemakers here today? If not,  
20 we should move on a little bit. Jim Mullen.

21 MR. MULLEN: Jim Mullen with Lennox.  
22 I'd like to thank the Commissioners and the staff  
23 for the opportunity to comment today.

24 I'd like to speak on behalf of our  
25 HeatCraft Division, which is the refrigeration

1 company. Probably their brand names are better  
2 known than the HeatCraft name. They sell product  
3 under the Bohn, Larkin, Chandler and Climate  
4 Control names.

5 The thing I'd like to talk about is the  
6 ECM or equivalent motor requirement in the walk-in  
7 cooler and condensing unit standards for walk-in  
8 coolers.

9 Since the original workshop on the title  
10 20 revisions, our HeatCraft personnel have been  
11 very active in trying to analyze sources of motors  
12 for their applications and determine what the  
13 supply availability is and some other things. And  
14 we submitted some comments prior to the 45-day  
15 language, which I believe are probably under the  
16 other docket number and don't show up today.

17 But as a result of that we'd like to  
18 request and even recommend that the ECM or  
19 equivalent provisions be removed from this round  
20 of changes to title 20.

21 Our reasons are along these lines.  
22 First and primarily is that for all the motors  
23 that HeatCraft uses in their product today, only  
24 50 percent of those motors are available in ECM  
25 versions. So if the regulation changed today they

1 would lose half their product line.

2 And, of course, the equivalent provision  
3 in there then becomes very difficult. If there's  
4 no ECM motor and it is the standard, what is the  
5 equivalent to a motor that doesn't exist. They  
6 have another problem. That's the major issue that  
7 we would base our request on.

8 Some others that should be considered  
9 are for those motors that do exist in the supply  
10 chains today there's really not a widespread  
11 repair stock. So if you have a cooler full of  
12 meat, have a motor failure, the serviceman likely  
13 does not have an ECM motor on his truck. And you  
14 begin to border on a public health and safety  
15 issue.

16 In the future I'm sure that will change  
17 as these PMs become more popular, there will be  
18 more available in the supply chain.

19 The technical analysis has to be a  
20 little bit questionable in that if the motors  
21 aren't available the technical analysis requires  
22 the cost of the motor and the efficiency of the  
23 motor be cranked into it. So if the motor isn't  
24 there it's pretty difficult to do.

25 Also, specifying the standard as an ECM

1 is a prescriptive standard, which is very  
2 difficult. It would be much better if a motor  
3 efficiency could be specified. And then the  
4 technology to meet that requirement be met by  
5 whatever devices are out there.

6 So, just in summary, we'd ask that the  
7 provisions for ECM or equivalent be removed at  
8 this time. And we would -- Lennox and HeatCraft  
9 would certainly be willing to work with the  
10 California Energy Commission, their contractors  
11 and ARI to come up with provisions for the future  
12 that would be more meet-able.

13 Thank you.

14 COMMISSIONER ROSENFELD: Removed is a  
15 sort of strong word. I mean you're talking about  
16 delay, as I understand it.

17 MR. MULLEN: Correct. Removed from this  
18 revision to title 20.

19 COMMISSIONER ROSENFELD: Couldn't we  
20 just discuss a year or so -- it's just an  
21 availability problem if I was listening.

22 MR. MULLEN: Correct. It's an  
23 availability problem back at the motor supplier.

24 COMMISSIONER ROSENFELD: So is that a  
25 year -- how long would it take to soup up

1 production?

2 MR. MULLEN: I certainly can't speak for  
3 the motor manufacturer.

4 COMMISSIONER ROSENFELD: Right.

5 MR. MULLEN: But our HeatCraft people  
6 tell me that from the time they've had a motor  
7 available, on some motors it's taken over a year  
8 to qualify for use in the appliance.

9 You run into, particularly in  
10 refrigeration and low temperatures, you run into  
11 moisture issues and particularly with electronics,  
12 if there are any involved. And so it takes a  
13 certain number of iterations of product  
14 development to get to a product that has the  
15 durability and life in the field that's required.

16 So it certainly could be a year to  
17 develop that many motors. Plus our folks have to  
18 convert a lot of products over to use in the  
19 motor, and take it through the engineering change,  
20 the UL approvals and into the manufacturing  
21 process.

22 COMMISSIONER ROSENFELD: Gary, are you  
23 aching to say something?

24 MR. FERNSTROM: I have a question for  
25 Jim. What is it about the motor that makes it

1       unavailable? Is it the frame size not available  
2       in that horsepower? What I'm getting to is a  
3       question about whether or not it might be possible  
4       to change the mounting in the equipment to  
5       accommodate a motor that is available.

6               MR. MULLEN: I think there are several  
7       reasons. I don't think there's one blanket  
8       reason. You'll find things like three-phase, high  
9       voltages, certain frame sizes, certain power  
10      outputs are the dots that are missing in the  
11      matrix in motors that are needed.

12             MR. FERNSTROM: Thank you.

13             MR. TUTT: Thank you, Jim. Noah  
14      Horowitz.

15             MR. HOROWITZ: It was on vending  
16      machines.

17             MR. TUTT: Anything else on the walk-in  
18      freezers or coolers or --

19             COMMISSIONER ROSENFELD: Well, I guess  
20      I'm -- I don't think there's a difference here,  
21      but, Jim, I'm still talking to you. Are you going  
22      to recommend some sort of time? I mean, as I  
23      said, just exemption seems a little bit shocking.  
24      And a delay seems completely understandable.

25             MR. MULLEN: I probably can't speak to

1 well for our HeatCraft folks, but I would put that  
2 question to them. I think their first preference  
3 would be to just take it out of this round of the  
4 title 20 and make sure that adequate time gets  
5 devoted to it, so that it's a good requirement the  
6 next time you go through title 20, which I assume  
7 is every couple of years.

8 COMMISSIONER ROSENFELD: Like every  
9 three, I guess.

10 MR. TUTT: But you could ask them about  
11 a second preference in terms of a compliance date  
12 that's delayed.

13 MR. MULLEN: A second preference might  
14 be a delay in the date, but I would have to ask  
15 them for their best judgment on how long it would  
16 need to be. My first guess would be that it will  
17 be more than a year.

18 MR. TUTT: Okay.

19 MR. MULLEN: Just because of the issues  
20 they've had with previous developments.

21 PRESIDING MEMBER PFANNENSTIEL: Would  
22 you file comments, put that in writing so we'll  
23 have that for the record?

24 MR. MULLEN: We certainly will.

25 PRESIDING MEMBER PFANNENSTIEL: Thank

1       you.

2               MR. MULLEN:  Thank you.

3               MR. TUTT:  Noah, just a second.  Is  
4       there somebody else on --

5               MR. POPE:  I am Ted Pope with Energy  
6       Solutions here on behalf of PG&E.  Again, there's  
7       an alternate strategy here in order to get  
8       significant portion of the savings.  We struggled  
9       in our recommendations to the Energy Commission on  
10      whether you specify motor technology or specify  
11      efficiency level.

12              I think a lot of the folks around the  
13      table would rather specify an efficiency level.  
14      The problem is that it was a real dearth of  
15      information.  There is a test procedure, IEEE-114,  
16      for measuring efficiency in fractional horsepower  
17      motors.

18              But that information seemed to be very  
19      unavailable, the manufacturers didn't seem to have  
20      the consistent efficiency ratings.  So there may  
21      be some holes in the ECM.  I think a lot of them  
22      can be handled with, you know, as Gary suggested,  
23      re-doing the mount.  As far as three-phase power  
24      that may be an issue.  You know, I hear some of  
25      Jim's comments, but I think the Commission could

1       also look at the issue of delaying that portion of  
2       the standard.

3               Another strategy would be to try and go  
4       back to an efficiency level and specify and say 60  
5       percent efficiency based on that EEE-114. At this  
6       moment I'm a little hesitant. I need input from  
7       Jim and other folks as to what that right number  
8       should be. That would free folks up to use a PSC  
9       motor instead of ECM motor. Maybe get slightly  
10      less efficiency, but you know, over the next four  
11      or five years you're still getting the bulk of the  
12      opportunity compared to the standard motor that's  
13      in place now, which is down, probably only 15, 20  
14      percent efficient versus getting something in the,  
15      you know, high 50s or 60 percent.

16              So that's something that perhaps we can  
17      consider in the next few days.

18              Jim, would you argue that there are PSC  
19      motors available for most of those applications  
20      for which ECMs aren't?

21              MR. MULLEN: To try and answer Ted's  
22      question, there are more PSC motors available than  
23      ECMs. So, if half the motors aren't available in  
24      ECMs, I think the percent that are not available  
25      in PSC are equivalent or probably 10 percent or 20

1 percent, it would be smaller, considerably  
2 smaller.

3 And the PSC motors do have pretty good  
4 efficiency in most cases.

5 MR. TUTT: Thank you. Sorry, Noah,  
6 behind you.

7 (Laughter.)

8 MR. LUTZ: I didn't fill out a card, but  
9 I had to comment on the IEE-114 test procedure.

10 PRESIDING MEMBER PFANNENSTIEL: Excuse  
11 me, could you identify yourself, please.

12 MR. LUTZ: Jim Lutz, Lawrence Berkeley  
13 National Laboratory.

14 PRESIDING MEMBER PFANNENSTIEL: Thank  
15 you.

16 MR. LUTZ: The test procedure doesn't  
17 work for ECMs. It works fine for induction  
18 motors, the small fractional horsepower motors.  
19 The test procedure is designed for a nominally  
20 constant speed motor. And the ECM is a variable  
21 speed, so you can adjust it all over. And the  
22 test procedure doesn't have a mechanism for  
23 handling that.

24 So if you're going to use efficiency and  
25 try to catch ECMs, you're going to have to redo

1 the test procedure somehow.

2 MR. TUTT: Thank you. Leo, did you have  
3 something or are you just -- all right. Noah.

4 MR. HOROWITZ: Noah Horowitz with NRDC.  
5 I want to talk about vending machines and all  
6 these conversations are making me very thirsty.

7 First of all, NRDC has worked with Coke  
8 and Pepsi and the vending machine industry to make  
9 the vending machines more energy efficient. There  
10 are roughly 3 million vending machines, and here  
11 we're talking simply about those that dispense a  
12 can or a bottle of cold beverage. There are  
13 roughly 3 million of those in use in the U.S.

14 And until recently they used as much as  
15 five to ten times more energy than a new  
16 refrigerator. And the reason that is is they were  
17 unregulated. They have lights in the front that  
18 used the old technology. They didn't necessarily  
19 incorporate more efficient compressors and so  
20 forth.

21 Energy-Star did a great thing in moving  
22 the ball along; set a meaningful spec; and I'm  
23 pleased to report the industry has responded. And  
24 the new machines use 10 to 40 percent less energy  
25 than the old ones.

1           What California has proposed doing in  
2       its standard is simply adopting the Energy-Star  
3       spec which has been in place for quite awhile. We  
4       strongly support that, and that's the main reason  
5       I'm here today.

6           By locking in the standard we'll also  
7       prevent backsliding to the extent the industry  
8       chose to go that direction.

9           Although -- is there a representative  
10      from Dixie-Narco here today? They have written  
11      comments that were submitted. Dixie is one of the  
12      three manufacturers of vending machines. And  
13      they're requesting, and I'd like to respond to  
14      their request, vending machines are tested in a  
15      chamber that's kept at 90 degrees F. That's what  
16      the whole industry has agreed on.

17           Dixie, in their comments, is saying hey,  
18      some of our machines are only used indoors. Why  
19      don't you test ours only at 75 degrees F. What's  
20      not stated here that's very important to note is  
21      they're saying test us at this less stringent  
22      condition but allow us to meet the standard that's  
23      set at 90 F.

24           What's going to happen, a machine tested  
25      at 75 degrees F will use several hundred kilowatt

1 hours less per year. So, an analogy would be,  
2 let's say I'm a manufacturer, say test me for  
3 miles per gallon for highway, that's 40 miles per  
4 gallon. But only hold me to the city level, which  
5 is much less.

6 So, while we agree that a machine, if it  
7 truly is used indoors, would use less energy, we  
8 think the responsibility is on Dixie to have the  
9 whole industry provide data at 75 F, which they  
10 didn't. And then let's set an indoor machine  
11 standard if that's the way they want to go.

12 They're not proposing that, so in  
13 summary we think the state should continue doing  
14 what it's doing, and deny Dixie its request.

15 What's happening here is the industry  
16 might be moving towards glass-front machines.  
17 Often those are indoors for vandalism reasons, so  
18 nobody smashes the front. And those are  
19 inherently less energy efficient due to the heat  
20 transfer through the glass. So we think that's  
21 maybe the reason for the request.

22 MR. TUTT: Okay.

23 MR. FERNSTROM: I have a comment on  
24 Dixie-Narco's comments, as well. And that is even  
25 if many of these machines are indoors, the way you

1 get at 75 degrees is through the cooling in the  
2 building system.

3 So the heat that the machine produces as  
4 a result of this lack of high efficiency has to be  
5 taken out of the building by the air conditioning.  
6 So I think it's really appropriate to stick with  
7 the current proposal.

8 MR. TUTT: Thank you.

9 PRESIDING MEMBER PFANNENSTIEL: Thank  
10 you. Michael.

11 MR. MARTIN: Yes. I have been quite  
12 involved in this vending machine discussion,  
13 particularly with Dixie-Narco, as I have chaired  
14 the ASHRAE Committee that recently revised the  
15 test method.

16 And it was subject to an appeal from  
17 Dixie-Narco. We had an appeals hearing a week ago  
18 and we'll hear what the result is in another week.

19 Part of the data that Dixie-Narco  
20 brought up was a listing of 43 units from various  
21 manufacturers to comply with the Energy-Star  
22 specification. Of those, four of them were glass-  
23 front ones that were listed for indoor use only.

24 The rest of them were listed for  
25 outdoor/indoor, or it may be an indoor/outdoor,

1 I'm not sure which. And should we go with that  
2 proposal from Dixie-Narco we would be comparing  
3 the vast majority of units which are designed for  
4 indoor and outdoor, and are frequently indoors,  
5 with this special treatment for the glass-front  
6 ones.

7 What we did discover from data they  
8 provided is that if you take the energy  
9 consumption at 75 degrees -- excuse me, at 90  
10 degrees, and then you test it again at 75  
11 degrees -- no, I've got this back-to-front -- but  
12 there are 50 percent increase. It's a huge  
13 increase.

14 And so this is not a good idea. And it  
15 also is that Dixie-Narco is expecting a huge swing  
16 to these glass-front units, as to be 50 percent of  
17 the market within a few years. Which is a trend  
18 that we certainly shouldn't encourage.

19 MR. TUTT: Thanks, Michael. Steve.

20 MR. NADEL: Yes, Steve Nadel, ACEEE.  
21 Just want to add a couple of additional points on  
22 this. I agree with both Michael and Noah that we  
23 shouldn't grant Dixie-Narco's request to have a  
24 separate test temperature, even though the  
25 standard remains unchanged.

1           Two additional things I wanted to raise.  
2       One, to back up what Noah said, it would be very  
3       important to have data on the performance of these  
4       models. And if we're going to set a separate  
5       class, set a reasonable thing, rather than just  
6       say use a different test procedure.

7           NAMA, the trade association for these  
8       type of equipment, did submit some comments in  
9       May. And I followed up with them afterwards and  
10      said it would be very useful to have data  
11      submitted. And they go, yeah, yeah, we're  
12      gathering it; we'll submit those for the record  
13      shortly. Here it is October; as far as I know  
14      there is no data. So it's very hard to consider a  
15      separate class when they were told back in May, or  
16      maybe it was early June when I actually talked to  
17      them, to get date in. They said yes, and they  
18      haven't.

19           The other thing is Dixie-Narco in their  
20      comments note that Energy-Star does have a  
21      separate class. This was actually quite  
22      controversial. Energy-Star added it at the last  
23      minute. And when a bunch of people, including  
24      many of the people in this room, said no, you  
25      shouldn't do it now, let's consider it carefully,

1       they said, oh, there's so few products now, we'll  
2       be looking at it carefully and maybe in the next  
3       year we'll be revising it. So what Energy-Star  
4       has done is very temporary and supposedly they are  
5       going to be reviewing it this year and quite  
6       possibly revising it.

7               So, thank you.

8               MR. TUTT: Thanks, Steve. Anybody else  
9       on vending machine issues? Nobody from Dixie-  
10       Narco?

11              MR. MARTIN: There is written testimony  
12       in the package.

13              MR. TUTT: Okay. I have one more blue  
14       card for this whole group of appliances. Karim  
15       from ARI.

16              DR. AMRANE: Good morning; I'm Karim  
17       Amrane with the Air Conditioning and Refrigeration  
18       Institute. My comments would be on commercial  
19       refrigerators and freezers. In particular,  
20       commercial refrigerators and freezers without  
21       doors.

22              What has been proposed by the Commission  
23       is to set efficiency standard for this product at  
24       the same level as commercial refrigerators and  
25       freezers with transparent doors. And obviously

1       they are inherently less efficient.

2               So we question the validity of this  
3       analysis to set efficiency at the same level when  
4       we know for sure that equipment without doors  
5       would consumer more energy.

6               But, also I understand that the levels  
7       are based on two models in the CEC database. So  
8       we don't believe that you have enough data to  
9       substantiate the level that you're proposing.

10              So we are suggesting that you either  
11      gather more information, more data, and set  
12      levels, or delay it until you have that  
13      information.

14              I have also a comment on the typical  
15      reach-ins, those with transparent doors, and that  
16      has to do with rapid cool-down. There's some  
17      beverage merchandisers that design specifically to  
18      cool down the temperature at a faster rate than  
19      conventional products.

20              And we believe that that should be a  
21      separate product class for this type of products.  
22      They have over-sized compressors, over-sized,  
23      which consumes more energy, of course. And we  
24      believe that they shouldn't be held to the same  
25      efficiency levels.

1           My other comment has to do with reach-  
2   ins, refrigerators, freezers, a combination of the  
3   two. The equation that's being proposed by the  
4   Commission, which is, I believe, the Energy-Star  
5   equation, is flawed. It has a negative sign,  
6   which means that at a certain volume the energy  
7   consumption would be negative, which is  
8   impossible.

9           So, we suggest that you adjust this  
10   equation or put a limit, a minimum limit so that,  
11   you know, it doesn't go into negative energy  
12   consumption which doesn't make sense.

13           Finally I have a question for the  
14   Commission which has to do with reach-in freezers  
15   that's not designed for load temperature  
16   application. The current definition, I believe,  
17   is only limited -- limits the definition to  
18   freezers at zero degree F., but there are freezers  
19   that are designed for -25, -30 degree F  
20   application.

21           And my question is are those products  
22   covered by the regulation? And if so, do you  
23   intend to regulate them the same way at the same  
24   efficiency levels as freezers that operate at zero  
25   degree F.

1           MR. TUTT: Thank you. Michael, do you  
2 have a response?

3           MR. MARTIN: Well, that was a lot of  
4 questions, but I have a response for some of them.  
5 Starting with the most recent one, we did get a  
6 call from somebody indicating some freezers that  
7 go down to negative 30 degrees, I believe.

8           As we'd looked them up on the website,  
9 we found that they were listed as a range from  
10 zero to minus 30. So it is certainly possible to  
11 test them at minus 5, which I believe is the  
12 temperature we've shown for testing.

13           When you're getting into how you operate  
14 a piece of equipment you specify a temperature  
15 which may be typical, but it certainly doesn't  
16 apply exactly to every piece of equipment. And  
17 this is a universal problem with any test method.

18           And as I mentioned on another appliance,  
19 the big question is whether you can test the unit  
20 at that temperature. And we find no evidence at  
21 this stage that there are units that you cannot  
22 test at minus 5 degrees.

23           So this is not talking about the scope.  
24 This is talking about the temperature with which  
25 the testing goes on.

1           You're also correct that there is a  
2       formula with a negative sign, and it related to  
3       commercial refrigerator/freezers. And it was a  
4       genuine slope of the line. It did go the wrong  
5       way for commercial refrigerator/freezers.

6           On the other hand, the temperature at  
7       which you actually have a zero use -- excuse me,  
8       the temperature -- the volume is 2.6 cubic feet.  
9       And a commercial refrigerator/freezer at 2.6 cubic  
10      feet is inconceivable. So it's not a real  
11      problem. But it is something that we certainly  
12      could put a limit on it if that turned out to be  
13      necessary.

14           The first --

15           COMMISSIONER ROSENFELD: Seems like an  
16      easy way to satisfy Karim.

17           (Laughter.)

18           MR. MARTIN: Well, there is also a  
19      negotiation going on for some federal legislation  
20      related to refrigerators. And one of the clauses  
21      in there is we try and persuade Energy-Star to  
22      make this change. And should that get signed, and  
23      we are committed to try and make them change it,  
24      if we do that we certainly ought to try and make  
25      us change it, too.

1           The first item that Karim brought up was  
2   related to the type of beverage vendor -- not a  
3   vendor, a refrigerator from which you help  
4   yourself to a bottle of beverage when you're  
5   checking out from Raley's store.

6           And some of them have glass doors on  
7   them in some of the aisles, and some of them, very  
8   nice looking design, have no glass doors. They  
9   are incredibly less efficient. They are  
10  performing exactly the same duty, and it's an  
11  exact parallel to the problem of the glass-front  
12  vending machines.

13           Consequently we don't feel that  
14   something that is inherently less efficient and  
15   does exactly the same job should have a different  
16   standard.

17           I've forgotten what the other comments  
18   were.

19           DR. AMRANE: Let me follow up on this.  
20   Karim Amrane, again. So are you saying that  
21   because they perform the same duty that we  
22   shouldn't allow these type of products in the  
23   markets, is what you're saying? Or --

24           MR. MARTIN: No, I'm saying if you want  
25   to have something which apparently will result in

1 making a more impulsive purchase as I go out, that  
2 you're going to have to work harder to make it  
3 comply with the standards than you would have to.

4 If you have one with a glass door that's  
5 inherently more efficient.

6 DR. AMRANE: So the same thing apply to,  
7 for example, reach-ins that have solid doors and  
8 reach-ins that have transparent doors? Then why  
9 do you have then two separate standards for this  
10 type of products? They have the same utility.

11 MR. MARTIN: They don't really have the  
12 same utility. In McDonalds somebody will take a  
13 solid door refrigerator and take out of it  
14 whatever they want to take out of it.

15 If the same thing happens at Raley's  
16 Supermarket and I go in to help myself out of  
17 something with a solid door, it doesn't serve its  
18 purpose.

19 So the glass door ones do have a certain  
20 utility beyond the solid door ones. But the ones  
21 with no doors at all on those bottles, don't have  
22 any different duty from the ones with the glass  
23 doors.

24 DR. AMRANE: I guess I find it very  
25 strange that the Commission would set standards

1 just on this kind of comments. I mean technically  
2 they are different; they consume different amount  
3 of energy.

4 I think the Commission should look at  
5 that, I mean, otherwise it will be pushing the  
6 market in one direction.

7 And my first question had to do -- my  
8 second question had to do with the pull-down.  
9 They are also different; they have over-sized  
10 compressor; they have different duty. And they  
11 should be a separate class, as well, because they  
12 consume a different amount of energy.

13 MR. MARTIN: I'd like to pass that  
14 comment on to our supporters here.

15 MR. FERNSTROM: Consultant team, do we  
16 have any comments? Steve, go ahead.

17 MR. NADEL: Steve Nadel again. Just to  
18 add a few things on a couple of the issues that  
19 are being discussed.

20 Regarding pull-down temperatures, it is  
21 true that if you over-size the compressor they  
22 will use somewhat more energy. However, there  
23 often is other things you can do to bring the  
24 energy efficiency in line with the proposed  
25 standards.

1           In the case of the glass-door machines  
2       there are two major manufacturers. One of these  
3       manufacturers on their pull-down machines has done  
4       a lot, so their units generally do comply. The  
5       other has not. So it's a judgment call, you know.  
6       They can make it up or not.

7           In terms of the refrigerator/freezers  
8       and the fact that ultimately they become energy  
9       generators instead of energy consumers, as Mike  
10      pointed out, there are no units at those sizes.  
11      So it's somewhat of an academic discussion at this  
12      point.

13          I would point out, as Mike mentioned,  
14      there are discussions about a national consensus  
15      standard. And what we've done there in a part of  
16      the agreement I think we have reached is to say  
17      that the energy use will either be the same  
18      formula California uses or .7 kWh per day.

19          What that basically says, if the unit is  
20      5 cubic feet or less, yeah, you have a certain  
21      amount of energy.

22          Again, there are no units now being sold  
23      that I'm aware of at that level. But at least it  
24      provides that potentially achievable target if  
25      someone wanted to develop a unit as opposed to

1 requiring them to generate energy. So something  
2 you may want to consider for these.

3 In terms of very low temperature units,  
4 California currently regulates these products. So  
5 you've had to deal with these issues for a couple  
6 of years. I agree with Michael that most products  
7 should be able to be tested at zero.

8 You may come across some type of  
9 esoteric product. I heard about one the other day  
10 that is designed to cool blood to negative 100 F.  
11 They claim they have difficulties.

12 But it's extremely esoteric, and I  
13 believe you probably have procedures already,  
14 within the current regulations, to deal with  
15 that.

16 I think those were the additional things  
17 I have to add on these different issues.

18 MR. TUTT: Thank you, Steve. Anyone  
19 else on this group of appliances?

20 PRESIDING MEMBER PFANNENSTIEL: Well, I  
21 think then before we move on to the next group,  
22 it's after 12:00 now, and I'd suggest that we  
23 break for lunch for just about an hour from now.

24 By that clock I'd bring people back  
25 about 20 after one.

1           We still have several areas that we need  
2       to cover this afternoon. So, say we be back here  
3       at 1:20.

4           (Whereupon, at 12:23 p.m., the hearing  
5       was adjourned, to reconvene at 1:20  
6       p.m., this same day.)

## 1 AFTERNOON SESSION

2 1:28 p.m.

3 PRESIDING MEMBER PFANNENSTIEL: We have  
4 a number of appliances yet to consider, so I think  
5 that we might as well jump right back into it.

6 Tim, what's the next group that we're  
7 considering?

8 MR. TUTT: We left off on 9, so we're  
9 considering now state regulated lamps. Michael,  
10 I'll give you a second or so to get ready, and  
11 then we can do -- it's on page 28 of the staff  
12 report.

13 MR. MARTIN: This group includes general  
14 service incandescent lamps and incandescent  
15 reflector lamps. And it only covers those lamps  
16 for which there is no federal standard. So,  
17 within the regulations you'll find references to  
18 federally regulated lamps and state regulated  
19 lamps.

20 PRESIDING MEMBER PFANNENSTIEL: Excuse  
21 me, Michael. Could you give us a quick  
22 distinction?

23 MR. MARTIN: Yes. Between state and  
24 federally regulated? Yes. There are federal  
25 regulations for lamps which are very specific as

1 to what they cover. And there are certain types  
2 of lamps that are not covered. And those are the  
3 ones that we are considering adopting standards  
4 for today.

5 On the federally regulated ones we are  
6 preempted to do anything about. And these are the  
7 other ones.

8 COMMISSIONER ROSENFELD: Can you give us  
9 a couple of examples and what fraction of the  
10 market the state load is?

11 MR. MARTIN: Well, I'm not sure I can  
12 give you percentages, but I can give the details  
13 as to the number of -- yes, I think maybe I can.

14 Page 28, there are two groups we're  
15 talking about. State regulated general service  
16 incandescent lamps, and state regulated  
17 incandescent reflector lamps.

18 The general service incandescent lamps  
19 covered by the proposed standard include those  
20 that are nonreflector, medium screw-based,  
21 incandescent lamps intended for general ambient  
22 lighting. The wattage range of the proposed  
23 standards from 25 watts to 150 watts.

24 There's approximately 300 million  
25 general service incandescent lamps covered by the

1 proposed standard in service throughout  
2 California.

3 Approximately 74 million lamps covered  
4 by the proposed standards are sold each year in  
5 California. The average annual per-unit energy  
6 consumption is 60 kilowatt hours.

7 The proposed two-tier efficiency  
8 standards which limit the power use based on lamp  
9 type apply to three categories of general service  
10 incandescent lamps.

11 The average annual per-unit energy  
12 reduction resulting from tier one standards would  
13 be 1.07 kilowatt hours. The average annual per-  
14 use energy reduction resulting from tier two  
15 standards would be 6 kilowatt hours.

16 And the statewide first year energy  
17 savings resulting from the tier one standards  
18 would be 80 million kilowatt hours. Statewide  
19 first year energy savings resulting from the tier  
20 two standards would be 441 million kilowatt hours.

21 What these are in percentages of the  
22 total between the federally regulated and state  
23 regulated I would require somebody else to help  
24 me --

25 COMMISSIONER ROSENFELD: Well, I guess

1 my confusion is these seem like the most common  
2 sorts of lamps that are just state regulated. So,  
3 did the federal government only go in for sort of  
4 specialized lamps or some sort?

5 MR. MARTIN: I think I'd like to have  
6 some help from Gary on these.

7 COMMISSIONER ROSENFELD: Help, Gary.

8 MR. FERNSTROM: Thank you, Michael. The  
9 federal government regulated R lamps. And I'm not  
10 sure of the effective date, but throughout the  
11 country ordinary incandescent reflector lamps are  
12 not to be sold. And the presumption was that they  
13 would be substituted for by halogen reflector  
14 lamps.

15 In fact, what has happened is a couple  
16 of variations of the R lamp, the so-called BR  
17 lamp, is sold now as if it were an R lamp. The  
18 difference is the BR lamp has a little bulge  
19 around the neck that gives it a slightly different  
20 light distribution. And it was included as an  
21 exception when the federal standard was adopted  
22 because it was a very small part of the market.

23 And it has taken over and, in effect,  
24 substituted for the reflector lamp. But in  
25 general, the federal government, aside from this

1 reflector lamp category, does not regulate  
2 incandescent light bulbs.

3 So the field is wide open for the state  
4 to mandate a small incremental improvement.

5 PRESIDING MEMBER PFANNENSTIEL: So what  
6 you're saying then is that almost all light bulbs  
7 will be covered under the state standard?

8 MR. FERNSTROM: With minor exceptions.

9 COMMISSIONER ROSENFELD: It's not such a  
10 small effect. I mean tier one is small, it's 1  
11 kilowatt hour out of 60, but tier 2 is 6 kilowatt  
12 hours out of 60. It's a 10 percent effect.

13 MR. FERNSTROM: Yes. So I'd like to  
14 call on our expert, Chris Calwell, to help set us  
15 all straight, because he knows far more about this  
16 than the rest of us.

17 MR. CALWELL: Let me just confine my  
18 comments to the questions that were asked. I  
19 think the numbers that Michael provided before  
20 were roughly correct. The tier one would save  
21 about 2 watts per lamp, and it's mostly just  
22 optimizing the lamp for efficiency instead of long  
23 life.

24 The second tier would save about 6 watts  
25 per lamp, primarily from using a krypton gas fill

1 in a conventional incandescent bulb between 25 and  
2 150 watts.

3 I think most importantly to Commissioner  
4 Rosenfeld's question, the annual savings estimated  
5 from these standards are comparable to the savings  
6 that resulted from all compact fluorescent lamp  
7 sales in California in the year 2001.

8 So you're making a very small efficiency  
9 improvement to a number of lamps that's much  
10 greater than the number of CFLs that sold. And,  
11 of course, as you know, the CFL programs that  
12 occurred in 2001 in California were funded by  
13 millions of dollars of utility incentive money and  
14 Flex-Your-Power program and the PUC and so forth.

15 So it would be very cost effective to  
16 secure an equivalent number of savings with  
17 incandescent standard (inaudible).

18 The second part of Commissioner  
19 Rosenfeld's question was regarding the DOE  
20 applicable standards to incandescent lamps. If  
21 you go back to the Energy Policy and Conservation  
22 Act, it required that DOE was supposed to initiate  
23 a rulemaking between October of 2000 and April of  
24 2002 to determine if federal standards should be  
25 promulgated for general service incandescent lamps

1 other than the reflectorized ones that Gary  
2 mentioned before.

3 DOE actually never initiated that  
4 rulemaking. And to my knowledge they never  
5 formally requested a delay or provided a reason  
6 for their inaction.

7 So, we didn't see how DOE's inaction on  
8 the topic would preclude California from acting on  
9 general service incandescent lamp efficiency.

10 PRESIDING MEMBER PFANNENSTIEL: Thank  
11 you, Chris. Why then did the federal government  
12 take on just this one specific category? Why did  
13 they carve out? Does anybody -- I mean maybe it's  
14 not important, but I'm just trying to --

15 MR. CALWELL: Steve, do you know the  
16 history on why they picked the category they did?

17 COMMISSIONER ROSENFELD: Even if it's  
18 not important, Jackie, it's very interesting.

19 MR. NADEL: You're referring to the fact  
20 that they picked on incandescent reflector lamps?

21 COMMISSIONER ROSENFELD: Yeah.

22 MR. NADEL: Right. Well, there was a  
23 negotiated agreement back in 1992 to set standards  
24 on those products; it was less controversial at  
25 the time.

1           The general service incandescent was  
2       considered more controversial and there were some  
3       technical issues that made it a little bit  
4       difficult. So everybody agreed to defer that to a  
5       rulemaking. So.

6           PRESIDING MEMBER PFANNENSTIEL: I see.  
7       That's as far as we got. Thank you very much.

8           MR. TUTT: Thank you.

9           PRESIDING MEMBER PFANNENSTIEL: Do we  
10      have anybody to speak on this change in the  
11      standard?

12          MR. TUTT: That being so, let's move on  
13      to category 11, luminaires.

14          MR. MARTIN: Well, actually I only  
15      described one of these groups --

16          MR. TUTT: Do you want to go to the  
17      other one, Michael? Sure. The state regulated  
18      incandescent reflector lamps.

19          MR. MARTIN: They're mentioned on page  
20      30. This category of lamp is designed to direct  
21      light in an arc that measures less than 180  
22      degrees. These lamps are commonly used as down  
23      lights in recessed lighting fixtures, and in other  
24      applications where light is required to be aimed  
25      in a particular direction.

1           The proposed standards require minimum  
2           efficacy levels for different lamp wattage ranges.

3           MR. TUTT:   Steve.

4           MR. NADEL:   Just very briefly wanted to  
5           talk in favor of the proposal.  Wanted to point  
6           out that there are federal regulations for many  
7           types of incandescent reflector lamps, but at the  
8           time the very obscure category of lamp called the  
9           BR lamp was exempted.  One very small manufacturer  
10          made it, so no one was really concerned about it.

11          It has since blossomed to be more than  
12          50 percent of sales, so what we are proposing to  
13          do is apply the same standards to BR lamps that  
14          apply to all the other incandescent lamps and  
15          close that loophole.  A very significant energy  
16          savings --

17          COMMISSIONER ROSENFELD:  To all the  
18          other reflector incandescents.

19          MR. NADEL:  Reflector incandescent, yes.

20          The other thing I'd point out is I know  
21          NEMA in their comments have claimed that this  
22          product is preempted, saying, well, incandescent  
23          reflector lamps are preempted.  But they are  
24          conveniently ignoring the definition of  
25          incandescent reflector lamps that very

1 specifically excludes BR lamps from the  
2 definition, as well as other types of products t  
3 hat we're covering.

4 So this was carefully crafted to not be  
5 part of their definition, and it's clearly not  
6 federally preempted.

7 Thank you.

8 MR. TUTT: Thanks, Steve.

9 MR. MARTIN: Jonathan Blees did a  
10 memorandum explaining the reasons for its  
11 conclusions. And I sent those to Mr. Gray at  
12 NEMA. And I haven't heard from him since. So I'd  
13 like to believe that maybe he's been persuaded by  
14 Jonathan.

15 PRESIDING MEMBER PFANNENSTIEL:  
16 Undoubtedly.

17 (Laughter.)

18 PRESIDING MEMBER PFANNENSTIEL: And  
19 Jonathan's, I think, memo then probably should be  
20 in the record of this proceeding.

21 MR. MARTIN: It should, indeed.

22 PRESIDING MEMBER PFANNENSTIEL: So we'll  
23 make sure that that goes in so there won't be any  
24 argument then on that question.

25 MR. MARTIN: Yes, indeed.

1 MR. TUTT: No further comments on this  
2 issue, then let's move on to luminaires, or metal  
3 halide lamps.

4 MR. MARTIN: Okay. Luminaires for metal  
5 halide lamps contain a ballast that is designed to  
6 provide the required starting voltage and to  
7 regulate the starting and operating current for  
8 proper metal halide lamp operation. These  
9 ballasts may be either probe start or pulse start.

10 The proposed standards contain a design  
11 standard requiring the use of a pulse start  
12 ballast and a minimum ballast system of  
13 efficiency.

14 MR. TUTT: Okay. Any comments on this  
15 set of appliances? Steve, again.

16 MR. NADEL: Again, with a very quick  
17 two-minute highlight here. This standard would  
18 help move the metal halide lamps from the less  
19 efficient probe start lamps to the more efficient  
20 pulse start, ultimately toward electronic  
21 ballasts.

22 We did meet with the manufacturers a  
23 year ago in San Diego at one of their meetings,  
24 and they had a bunch of suggestions about this.  
25 And we've incorporated those suggestions. We

1 worked carefully with them to try to get something  
2 that they considered workable. We've had a number  
3 of meetings -- conference calls with them since.

4 I'm not saying they're in love with the  
5 fact that they'd be regulated. I'm not saying  
6 that they like state standards, but they've had  
7 extensive input into the technical details, so  
8 that I think it's something that will work for  
9 them.

10 We also worked extensively with CEC  
11 Staff in terms of trying to get some of the  
12 references and other things, some of the, I think  
13 it's your title 24 staff, just to help fully  
14 coordinate those regulations.

15 So I think this is a significantly  
16 improved, compared to the May version, or  
17 particularly compared to the version a year ago.

18 I'd also note that NEMA is claiming  
19 preemption, but they have a similarly tenuous  
20 case, and I'll probably leave it at that. So I  
21 think you have a clear path ahead in my opinion.

22 MR. TUTT: Did Jonathan write another  
23 memo on this issue?

24 MR. MARTIN: No, sir, he wrote the same  
25 memo.

1 (Laughter.)

2 PRESIDING MEMBER PFANNENSTIEL: He's  
3 very efficient.

4 MR. TUTT: Where are these lamps  
5 typically used?

6 MR. NADEL: These are lamps -- and  
7 actually they proposed standards for the fixture  
8 not for the lamp -- but they would be maybe used  
9 in gymnasiums and Big Box Stores. They're the  
10 type of relatively intense lamp, typically used  
11 with relatively high ceilings. Usually indoors;  
12 sometimes outdoors.

13 MR. FERNSTROM: Best Buy.

14 MR. TUTT: Best Buy, okay. Yeah.

15 MR. FERNSTROM: So I have a comment,  
16 too, that applies to this opportunity in  
17 particular, but some of the other ones in general.  
18 And that is that the utilities have been providing  
19 rebates for pulse start metal halide lamps for  
20 probably a decade. And this represents an exit  
21 strategy from that continued cost of supporting  
22 this technology.

23 PRESIDING MEMBER PFANNENSTIEL: Thanks,  
24 Gary. Does the fact that we have no one here to  
25 speak on this standard from the industry imply

1       that either there is support for this, or does  
2       anybody know? Are there written comments filed?  
3       Or is this one that's being without controversy?  
4       Do you know, Steve?

5               MR. NADEL: NEMA has submitted two sets  
6       of comments back in the spring, primarily claiming  
7       preemption and not getting into technical details.  
8       I don't know if they are going to submit  
9       additional comments.

10              When I talked to them a couple weeks ago  
11       they said, yeah, they weren't planning on coming  
12       out here; they continued to believe it was  
13       preempted, but they weren't planning on making any  
14       technical comments. That was the plan a couple  
15       weeks ago.

16              PRESIDING MEMBER PFANNENSTIEL: Thank  
17       you.

18              MR. TUTT: Thank you. Any other  
19       comments on these lighting technologies?

20              If not, we can move on to category 12,  
21       which is external power supplies. And take it  
22       away, Michael.

23              MR. MARTIN: Okay. This is a global  
24       market rather than a California product. And the  
25       proposed standard would be a standby loss standard

1       only.  It's a very low energy use, but a huge and  
2       fast-growing number of units.

3               And John Wilson and the PIER Staff have  
4       been working with EPA, Energy-Star, the European  
5       Union, Australia, China and Japan to improve  
6       uniformity of test methods and standards.

7               And we had recent discussions with the  
8       industry, both in a face-to-face meeting here, and  
9       then with a conference call.  And the new informal  
10      draft dated October 7th, you should have in front  
11      of you, that will be the basis for the 15-day  
12      language.  It was distributed on October 7th.

13              And so things have changed a little.  
14      And this is what we're referring to.

15              The original description hasn't changed.  
16      Electric power supplies, external power supplies,  
17      convert alternating current at line voltage to low  
18      voltage, direct current or alternating current  
19      within an enclosure external to the direct current  
20      using product, itself.

21              The main types of external power  
22      supplies, linear power supplies which use  
23      transformers and switching power supplies which  
24      use solid state electronics.  Switching power  
25      supplies are inherently more efficient than linear

1 power supplies.

2 And with that I think I'll leave that to  
3 Chris to talk some more on. You should have quite  
4 a lot of commenters on this one.

5 MR. TUTT: I believe that we do, yes.  
6 So, I can start with the comments and -- Wayne  
7 Morris.

8 MR. MORRIS: I've got some slides I'd  
9 like to --

10 (Pause.)

11 MR. MORRIS: My name is Wayne Morris;  
12 I'm here from the Association of Home Appliance  
13 Manufacturers. We have some comments in regard to  
14 just a small portion of this section on external  
15 power supplies.

16 And it has to do primarily with the  
17 definition and with some of the elements that  
18 concern themselves with a very small percentage of  
19 these overall products.

20 The staff recommendation that has been  
21 out there for some time has been to include only,  
22 and to refer only, to what are called external  
23 power supplies.

24 The EPA Energy-Star, as of just a week  
25 ago, has revised their definition and has

1 restricted this to external power supplies.

2 The new CEC definition which came out  
3 with the September 10th publication has expanded  
4 that program by its definition to include another  
5 class of products that were not there previously.  
6 And that new definition is what causes us some  
7 problems.

8 So what is an external power supply?

9 Well, to us and to many people in the industry,  
10 these are a power conversion product, often a  
11 small box that does the conversion of 120 volts,  
12 for instance, AC, to some smaller amount of  
13 voltage. And are very often found and associated  
14 with a number of products. I've shown here a  
15 typical television type game situation on the  
16 left. And a computer printer on the right, which  
17 uses one of these box-type devices.

18 I've shown a couple of other examples  
19 here. These are computer speakers that have one  
20 of these set of these power conversion products.  
21 And a conference room type telephone that has,  
22 again, another box associated with it to do this  
23 power conversion. There's a paper shredder, for  
24 instance, that you can find that has one of these  
25 boxes.

1           And very often when you read the  
2     labeling on them they will say something like  
3     class 2 transformer, or class 2 power supply that  
4     leads you to understand that these are an  
5     external, very often external, and a power  
6     conversion product or power supply.

7           Our difficulty with this is that the  
8     definition that CEC is now operating with includes  
9     a few classes of certain types of battery  
10    rechargeable product, or battery chargers, as we  
11    think of them.

12          These, unfortunately, are different from  
13    an external power supply, in our industry  
14    particularly. They are not purchased as a  
15    commodity, and therefore they're not a common  
16    product that you would then set up a requirement,  
17    for instance, to purchase just this and purchase  
18    it at a particular standard level.

19          The CEC regulation treats them as a  
20    separate entity from the end product. But  
21    unfortunately, with battery chargers that's just  
22    not true. The battery charger includes more than  
23    just what is in that little box that's plugged  
24    into the wall. The battery charger includes  
25    complements inside of the end product, as well.

1           However, the test procedure that the CEC  
2           is referencing, and the test procedure that was  
3           developed by EPA Energy-Star only measures the  
4           output of the box. And so it misses a portion of  
5           the energy efficiency of the overall system.

6           The adapter portion, that is the box,  
7           itself, may contain special VI or voltage and  
8           current characteristics to it, mode switching and  
9           other power regulation. And it is, in fact,  
10          inherently limited within it for safety and for  
11          performance.

12          So what's a battery charger? To us  
13          these are small power conversion products that are  
14          powering or attempting to recharge rechargeable  
15          batteries that are very often used in household  
16          type appliance situations, or in a variety of  
17          perhaps power tools.

18          And they come in a variety of different  
19          configurations. Some of them are hardwired into  
20          the products, some are not. Some use a particular  
21          situation where you remove the batteries to charge  
22          them, in some cases they don't. So there are all  
23          different types in this situation.

24          The other problem that we have is the  
25          test procedure, itself, calls for relating watts-

1 in to watts-out. And this is a situation where  
2 many of the appliance battery chargers are  
3 actually marked as the whole unit. In other  
4 words, you can see on the right it's marked as if  
5 it had a DC output. Unfortunately, the box,  
6 itself, doesn't. It has an AC output. So it's  
7 being marked as the whole system, not as the  
8 powering output.

9 This causes a problem when you go to  
10 measure watts-in and watts-out. You're not  
11 measuring watts AC and watts DC; the comparison  
12 between the two won't work well. It will result  
13 in an area of measurement or a limit value's  
14 associated with it.

15 A typical external power supply is a,  
16 very often, constant voltage type of supply  
17 system. And contrasting here it's sort of the  
18 ideal on the left-hand side with what you actually  
19 see as a power supply on the right-hand side.

20 And the characteristic here is that this  
21 is a linear slope on this line, which then allows  
22 you, in the test procedure, it's supposed to be  
23 measured, or measured as 25, 50, 75 and 100  
24 percent of its power.

25 So a linear relationship here would

1 allow you to do an averaging, and thereby get an  
2 actual number that would be associated with it.

3 But in a battery charger it is a  
4 constant current type of source. And what that  
5 means is that is you're varying the current,  
6 you're really not looking at the total picture of  
7 the product. So a real battery charger actually  
8 has some slope curvature to it. And depending on  
9 where along that curvature you measure it would be  
10 whether or not you're measuring the true  
11 efficiency of it.

12 So the test procedure, itself, has a  
13 problem associating itself with battery chargers.  
14 The test procedure is measuring, we think, the  
15 wrong thing. It is inherently limited for safety  
16 and performance, and what we really ought to be  
17 looking at is the consumption of power, not the  
18 efficiency of one complement.

19 In this case, an external power supply  
20 of about the same size range is compared to a  
21 battery charger. And they are showing here the  
22 difference, if you will, in the measurement.

23 The other situation that we have with  
24 this is that the definition the CEC has used is,  
25 in the light of the EPA Energy-Star program, an

1 old definition. They have now assumed a new  
2 definition which is a little more complex,  
3 unfortunately, not what we would have preferred,  
4 but nevertheless, it's a different definition.  
5 Whereas, the CEC definition is still using the  
6 February 2004 EPA definition. This causes some  
7 problems for us.

8 There are a great deal of confusion in  
9 our industry as to what kind of products are in,  
10 or what kind of products are outside of the CEC  
11 regulation.

12 This is an example of a cordless  
13 rechargeable product in its recharging base. It  
14 contains some information, some indicator lights.  
15 We would think that this is outside. Others,  
16 including some of the consulting groups that have  
17 been working with the CEC, seem to indicate that  
18 it's inside. I think that there's overall some  
19 confusion here.

20 The mode indicator is, in fact, used in  
21 the CEC definition as a way of bringing it outside  
22 the definition. But, in fact, others have  
23 suggested that it may be in.

24 Here are two different products that are  
25 of the same basic type. They both take the

1 batteries out of the rechargeable product and put  
2 them into some kind of a charger. And yet,  
3 according to the CEC definition, one of them's  
4 inside and one of them's outside of the program.  
5 And yet they're virtually the same exact product.  
6 So we're having real trouble with the definition  
7 situation.

8 Here's two examples of cordless  
9 rechargeable vacuum cleaners, one of them inside  
10 the program probably, one of them outside the  
11 program. Again, for our industry and for a vast  
12 majority of consumers they can't tell the  
13 difference between these. Why would one be  
14 covered and one not.

15 Here's an example of a power tool, one  
16 cordless drill, another cordless drill. One is  
17 probably inside the program, one probably outside  
18 the program. Again, we can't quite tell why that  
19 situation.

20 Another problem we have with this as it  
21 applies to battery chargers is that the test  
22 procedure measures a no-load condition. Now,  
23 that's fine for an external power supply; works  
24 very nicely. There's no question.

25 For instance, use the example of the

1 scanner device that's on the right-hand side  
2 there. It's going to sit for some period of time,  
3 plugged into the wall. It is going to be  
4 operating in no-load condition in that situation.  
5 But for a cordless rechargeable product what's no-  
6 load? It's only going to be that portion of the  
7 time when it's lifted off of its charging and  
8 used. Which, in the minuscule amount of time in  
9 comparison to the time it's going to remain on  
10 charge, is really not getting at the type of  
11 situation that we're truly looking for.

12 In other words, is there any real  
13 savings here by limiting the product by its no-  
14 load application. We don't think so.

15 When it's applied to battery chargers,  
16 indeed, we don't think there's any real energy  
17 savings here. In many cases, by improving the no-  
18 load power won't really have any effect on it. In  
19 many cases you'll be able to change the efficiency  
20 at load points in order to comply with the  
21 standard, but you won't have saved any real energy  
22 for the consumer.

23 Inherently limited designs are required.  
24 They require some more impedance on the output.  
25 But they will -- it's very often that impedance

1 has got to be there. So the manufacturer will  
2 move it from the box to somewhere else in the  
3 circuit. Overall the consumer isn't going to save  
4 anything.

5 They also represent a very tiny amount  
6 of the numbers of overall adapter use of these  
7 boxes.

8 We also are very concerned about safety.  
9 By limiting the situation and changing the test  
10 procedure the way that it has been done, there's a  
11 concern about whether or not we're going to get to  
12 the real elements here, or whether we could be  
13 shifting the concern to a weaker design that could  
14 cause some safety problems.

15 Just last week there was a recall of  
16 990,000 of these external power supply type  
17 adapters, or what they refer to here in the CPSC  
18 notice as AC adapters for laptop computers. This  
19 is a concern that we have, very much concerned  
20 with battery chargers as they may apply to this  
21 situation.

22 CEC expanded the definition after the  
23 May hearing. The program was announced as  
24 covering only external power supplies. The May  
25 CEC-proposed amendment stated that it was AC to DC

1 external power supplies. There was no mention of  
2 battery chargers. And then when we saw the  
3 September 10th proposal that came out from the  
4 staff, it extended it both to AC to AC, and to  
5 battery chargers for the very first time. This is  
6 what concerns us with the process situation.

7 So what is industry going to do? We  
8 don't think that there's actually going to be any  
9 technology transfer from this. I know that there  
10 is going to be probably speakers that will talk to  
11 the availability of alternative, very sort of up-  
12 to-date type of designs, maybe even using  
13 integrated circuits or other kinds of situations.  
14 That's very true, but in fact, it probably will  
15 not be used in these typical types of products.

16 We're talking about products that  
17 generally retail for less than \$20. I saw one in  
18 the store the other day that was \$9.95. In that  
19 kind of a situation you're not going to be looking  
20 at electronic-type battery charging.

21 There's no appreciable gain to the  
22 consumer of this situation. Costs are going to  
23 increase. There's no direct substitute without  
24 additional circuitry involved and additional  
25 costs. The costs shown in the staff report may be

1 accurate for external power supplies. We don't  
2 believe that they're accurate at all for battery  
3 chargers. There's a very poor payback in this  
4 situation for battery chargers the way it's  
5 written.

6 So what we suggest that the CEC do is to  
7 limit this to external power supplies. Not apply  
8 to battery chargers or battery chargers that  
9 temporarily act as a power supply. The CEC should  
10 limit the scope and use the same definition as the  
11 EPA Energy-Star program.

12 The CEC references the EPA Energy-Star  
13 test procedure. We think that they ought to stay  
14 with the same definition situation, or some  
15 variation there.

16 We agree that we'd be very happy to work  
17 with CEC Staff on getting the right definition to  
18 keep the battery chargers, at this time, out of  
19 this particular regulation.

20 What we are suggesting is, and what we  
21 have committed to with EPA Energy-Star, is to  
22 agree to work toward the development of the  
23 correct test procedure by spring of '05 that will  
24 focus on consumption. In other words, the actual  
25 use of energy, rather than efficiency of one

1 little component that will consider the chemistry,  
2 the capacity, application, safety and all the  
3 other applications in this, and consider patterns  
4 of use. And then allow the CEC to pursue  
5 regulation if they choose to do so thereafter.

6 The conclusion that we have is leave the  
7 definition as it was proposed in May of 2004, or  
8 exclude constant current battery chargers for  
9 appliances until an appropriate, realistic and  
10 accurate test procedure can be developed.

11 That's all I have, thank you.

12 PRESIDING MEMBER PFANNENSTIEL: May I --  
13 I just want to make sure I understand your  
14 proposal. You would say that you would like to  
15 have this standard as it's written just apply to  
16 external power supplies now.

17 MR. MORRIS: Yes.

18 PRESIDING MEMBER PFANNENSTIEL: And then  
19 look in the future on how you would do the testing  
20 and then the definition for battery recharger? Is  
21 that what --

22 MR. MORRIS: Exactly.

23 PRESIDING MEMBER PFANNENSTIEL: --  
24 you're suggesting?

25 MR. TUTT: Wayne, I believe you said

1       that battery chargers are not usually sold as  
2       separate commodities.

3               MR. MORRIS:  They're not.

4               MR. TUTT:  Correct me if I'm wrong, it  
5       just seems to me like external power supplies are  
6       usually not sold as separate commodities.

7               MR. MORRIS:  They can be, very often.  
8       You can walk into, if I have to name one, a Radio  
9       Shack store, and you can buy a sort of a universal  
10      external power supply.  It probably has even  
11      multiple pins hanging on the end of it --

12              MR. TUTT:  I understand that, yeah.

13              MR. MORRIS:  -- connected to it --

14              MR. TUTT:  You can't buy those, but  
15      typically --

16              MR. MORRIS:  Yes.

17              MR. TUTT:  -- they're purchased along  
18      with a particular appliance or tool.

19              MR. MORRIS:  You can buy them  
20      separately, even.  But, yes, you're right, they're  
21      probably most often would come with the product.

22              But what I was getting at there is  
23      particularly when you're looking at how you effect  
24      the changeover of an industry to an end-product  
25      manufacturer, I'll use an example of a computer

1 peripheral device, they would go to a catalogue of  
2 a company that makes a large number of these  
3 external power supplies; and they'd select one.

4 And they'd basically just say, I need a  
5 3 watt, 12 volt output external power supply.  
6 It's a constant voltage type supply. There's  
7 really no unusual characteristics.

8 That doesn't happen with battery  
9 chargers. They're uniquely captured and uniquely  
10 designed to fit that particular end product  
11 application. This is what causes the problem when  
12 you're trying to effect that changeover.

13 MR. TUTT: You also said that the  
14 battery chargers are voltage DC rated instead of  
15 voltage AC rated?

16 MR. MORRIS: In some cases they are,  
17 yes.

18 MR. TUTT: Aren't most external power  
19 supplies, don't they usually include an adapter so  
20 that they would be DC rated as well, or not?

21 MR. MORRIS: They would be DC rated, but  
22 the true rating is, in fact, the output of that  
23 box. Whereas on a battery charger it's not.

24 In other words, if you cut the cord  
25 coming out of that little box, what you're going

1 to get in an external power supply is probably DC  
2 coming out. But it is not true of what you're  
3 going to get when you cut the cord on a battery  
4 charger. In most cases it's going to be AC.

5 So when you go to measure it, you're not  
6 going to be measuring apples to apples.

7 MR. TUTT: I'm sorry, don't they usually  
8 charge up batteries with DC power?

9 MR. MORRIS: The DC conversion is done  
10 somewhere else.

11 MR. TUTT: I see.

12 MR. MORRIS: It's done inside the  
13 product usually.

14 MR. TUTT: Okay. With respect to  
15 appliances like portable vacuum cleaners. An  
16 equivalent to a no-load state might be a fully  
17 charged state where the appliance sits in that  
18 state for a long --

19 MR. MORRIS: No. No-load would be when  
20 you lift it out of its charger and you go to use  
21 it to pick up the crumbs.

22 MR. TUTT: But there is a fully charged  
23 state presumably where it's using less power than  
24 when you're --

25 MR. MORRIS: Which is the test procedure

1       that we have right now, it does not measure it at  
2       all. And what we're suggesting is that does need  
3       to be measured. And when we work on the test  
4       procedure we will work on that.

5               MR. TUTT: Okay, thank you. Michael.

6               COMMISSIONER ROSENFELD: Wayne, it seems  
7       as if an awful lot of appliances have battery  
8       chargers. Let me ask you the following question.  
9       If I measure the load on my house at midnight  
10      tonight, take out the refrigerator cycling, I've  
11      always been told there's 50 to 100 watts of  
12      standby power. Or at least the house is drawing  
13      50 to 100 watts.

14              MR. MORRIS: You've been told that, yes.

15              COMMISSIONER ROSENFELD: What fraction  
16      of that is battery chargers versus just external  
17      power supplies?

18              MR. MORRIS: I couldn't tell you because  
19      I don't know your individual household situation,  
20      but I can --

21              COMMISSIONER ROSENFELD: Take an  
22      average.

23              MR. MORRIS: -- imagine if it's like  
24      most others, when you measure things like maybe --  
25      I don't know whether you have things like power

1 conversions for children's games, for instance, or  
2 power conversion for computers and computer  
3 peripherals, scanners, printers and other of those  
4 things. None of those are battery chargers.

5 The battery chargers would be  
6 specifically the types of things that we're  
7 looking at would be cordless rechargeable,  
8 countertop kitchen appliances, a few of those; a  
9 few personal care kind of appliances. A very few  
10 rechargeable, for instance, Todd mentioned the  
11 vacuum cleaners, for instance. There may be some  
12 power tools, also, that might be involved here.

13 Chances are I would say they've got to  
14 be less than 10 percent of overall use of any of  
15 these peripheral devices.

16 COMMISSIONER ROSENFELD: Okay.

17 PRESIDING MEMBER PFANNENSTIEL: In terms  
18 of the growth in this, this is an area that we're  
19 looking at because of the projected growth in  
20 these appliances that these relate to.

21 Do you have a sense or is there some way  
22 of knowing how much of that growth is in the one  
23 or the other? Is it external power supplies, or  
24 is it battery chargers?

25 MR. MORRIS: Well, I can only speak for

1 the products that we measure that the actual  
2 shipments on a monthly or yearly basis. And I can  
3 tell you that they are down significantly from  
4 where they were eight to ten years ago even.

5 We think that there isn't really much  
6 growth in the application of battery rechargeable  
7 products as opposed to the external power supplies  
8 where the growth is in the IT, information  
9 technology, the consumer electronics type of  
10 products. Other common products associated with  
11 the IT industry. That seems to be greatly  
12 enhanced, where as particularly in power tools and  
13 in household appliances the growth is not there.

14 It was a big rise from about 1970 to  
15 about 1985, there was a huge rise in the number of  
16 these battery rechargeable products. It's leveled  
17 off, and in fact, in some cases, come back down  
18 again since that time period. We don't expect any  
19 huge growth in that. There really have been very  
20 few of the new products introduced in our  
21 industry.

22 MR. TUTT: Yes, Gary.

23 MR. FERNSTROM: Let me make a comment on  
24 behalf of PG&E about why we proposed what we  
25 proposed, and ask Wayne if maybe he might comment

1 on it.

2 We had originally wanted to look at the  
3 active mode use of power supplies including  
4 battery chargers. But we were convinced by the  
5 industry that this was a difficult thing to do  
6 because there are different types of rechargeable  
7 batteries. Nickel metal hydride, nicad, in some  
8 cases alkaline cells that are designed to be  
9 recharged.

10 And they all operate under different  
11 circumstances with different intentions. For  
12 example, an industrial power tool might want a  
13 rapid charger that would charge a nickel metal  
14 hydride battery rapidly. Others are designed to  
15 charge continuously, so that a nicad battery might  
16 be charged and available for use at any time.

17 Given the complexity of that, we tried  
18 to settle for something that was much simpler and  
19 much more basic. And we think it's a reasonable  
20 proposal, given the difficulty of addressing the  
21 bigger picture, until more work is done.

22 MR. MORRIS: Would you like me to --

23 PRESIDING MEMBER PFANNENSTIEL: Yes,  
24 please.

25 MR. MORRIS: Wayne Morris, again. Thank

1       you, Gary. You are absolutely right that it is a  
2       complex situation. But we don't think it's an  
3       impossible task when it applies to the products  
4       that we're talking about.

5               Constant current battery chargers to  
6       recharge appliances and power tools, we really  
7       believe that we can do this. And we wouldn't have  
8       committed to it otherwise.

9               We've committed to the EPA Energy-Star  
10      to do that and I think that's why they looked at  
11      this; they realized that the test procedure is not  
12      right currently. And that's why they removed  
13      these products from their present configuration on  
14      external power supplies right now.

15              So, yes, it's complex, there's no  
16      question about it. But, you know, just because  
17      it's complex doesn't mean we're going to walk away  
18      and throw up our hands and say, never can do. We  
19      just are going to work on it.

20              MR. TUTT: Okay. Any other comments?  
21      Gary -- I'm sorry, on the presentation from Wayne?

22              PRESIDING MEMBER PFANNENSTIEL: Wayne,  
23      would you make sure that your presentation is  
24      included in the docket on this?

25              MR. MORRIS: Absolutely. Thank you,

1 Ms. Pfannenstiel.

2 MR. CALWELL: I think it might make  
3 sense to hear from the manufacturers next. I can  
4 follow them, if that's okay. I think there are  
5 three manufacturers here of power supply and  
6 battery charging components or finished products.

7 MR. TUTT: Sure, Chris. How about Abdul  
8 from --

9 MR. SHER-JAN: I opted for some hard  
10 evidence here instead of a soft presentation,  
11 which we can't leave here, but I can pass it  
12 around and let you guys look at it.

13 I'm Abdul Sher-Jan, and I'm with EOS, a  
14 division of Celetronics, which is a California-  
15 based company. We're making AC/DC power supplies  
16 for computers, networking, telecom, all kinds of  
17 different applications.

18 We're considered the industry leader in  
19 the high-efficiency, high-density power supplies  
20 in that group. And we've been doing this for 10,  
21 12 years. So obviously I'm here to support this  
22 regulation, initiative. And, you know, as far as  
23 we're concerned it's long overdue probably.

24 And we believe that the technology is  
25 readily available right now to actually do this in

1 a cost effective way.

2 And some of the products we have, we  
3 service Dell Computers, you know, with chargers,  
4 65 watt; Apple Computers, 90 watt adapter. Not  
5 sure if you guys want to look at this or just  
6 showing it is good enough. 65 watt for the Apple  
7 computers. And also we have a whole bunch of  
8 other smaller standard products that we serve as  
9 general purpose for different applications.

10 The discussion of, you know, whether  
11 this is for battery charger or not, if you look at  
12 a notebook adapter, it's a charger as well as, you  
13 know, it turns on and runs the computer.

14 So excluding all battery chargers, I  
15 think, is going to be a mistake because in the  
16 computer industry where we're most familiar with,  
17 they have no-load power rating, where when it's  
18 disconnected but it's still plugged into the wall,  
19 you know, there's a minimum efficiency rating on  
20 this, and we have what it should be.

21 Also there is when a battery is fully  
22 charged and the computer goes into a standby mode  
23 where it draws minimum current, we have to meet a  
24 certain efficiency rating. And then, of course,  
25 when it's running at full load, our products are

1 actually running at 90 percent plus efficiency.

2 So it far exceeds the regulation that you guys are  
3 pushing right now.

4 And we have our own patent technology  
5 that we're using, as well as I can understand  
6 where people from Power Integration and ON Semi  
7 here, and this is a 45-watt adapter that's  
8 actually using the Power Integration product, a  
9 semiconductor in it, which meets the -- it's about  
10 87, 86 percent efficient.

11 And also we're working with ON Semi on  
12 the same type of products to get the efficiencies.  
13 So what I'm saying is -- and we're competing with  
14 other industry leaders in the AC to DC power  
15 supply arena. And that are pushing the  
16 conventional designs. And we're meeting them in  
17 cost and a much better performance on the  
18 efficiency side.

19 So, it's not a very costly solution  
20 anymore. The technology is there and if you, you  
21 know, apply yourself and actually try to go  
22 outside of what the industry has been following  
23 for the last 10, 20 years, there are cost  
24 effective solutions that meet the efficiency  
25 requirements as well.

1 MR. TUTT: Thank you.

2 PRESIDING MEMBER PFANNENSTIEL: John.

3 MR. WILSON: Abdul, all those power  
4 supplies that you showed us, do they meet the new  
5 proposed standards?

6 MR. SHER-JAN: Actually the ones I  
7 showed you exceeds the current spec because I  
8 think you're pushing for 84 or 86 percent  
9 efficiency. And we're running over 90 percent.  
10 And this is shipping currently today to Apple;  
11 this is shipping currently today to Apple; this  
12 one will be shipping starting in a month or two  
13 for Dell. And it's going through qualification.  
14 And then we'll have a whole bunch of standard  
15 products.

16 MR. WILSON: Now, Wayne was showing  
17 pictures mostly of things like DustBusters and  
18 drills. You're making higher tech products. And  
19 I have talked to Wayne about this current voltage  
20 question, which utterly baffles me.

21 But I wonder if you could tell us if you  
22 think that's an engineering problem that linear  
23 power supplies can't --

24 MR. SHER-JAN: For the Notebook  
25 application, all of our products are voltage,

1 constant voltage type. But they do make constant  
2 current type which is called also constant power.  
3 And actually all the IBM pc's right now uses the  
4 constant current type adapters, which is designed  
5 by -- I mean they actually use a mix of them, you  
6 know. You can interchange them.

7 The applications that Wayne is talking  
8 about is a little bit on a very low end, I mean  
9 they're talking about 2 to 5, 10 watt application,  
10 which is some arena that we're not really  
11 participating in right now.

12 And the majority of them were linear  
13 power supplies, you know, just transformer, and  
14 just direct the -- that comes in. And it is  
15 inefficient just because it's a linear type  
16 solution.

17 Does that answer your question?

18 MR. WILSON: Yeah. I'm going to ask an  
19 anticipatory kind of question here, because I  
20 think we're going to hear later about issues  
21 related to lead-free components and  
22 electromagnetic interference.

23 MR. SHER-JAN: This is actually electric  
24 product.

25 MR. WILSON: Okay.

1           MR. SHER-JAN: And electromagnetic-wise,  
2     you're talking about the EMI and emissions. You  
3     know, our technology is designed to do zero  
4     voltage, zero current switching, which minimizes  
5     any radiation of noise; and, you know, keeps the  
6     emissions very low. And it helps with the  
7     efficiency, because we don't have to put mixed  
8     numbers and protection circuitry to reduce the  
9     amount of emission that's, you know, generated by  
10    the device.

11          MR. WILSON: For the Apple power  
12    supplies you're showing there, are those lead  
13    free?

14          MR. SHER-JAN: Apple is not lead free.  
15    The industry is just beginning to move into that  
16    lead free, you know, towards lead free. And  
17    mainly Europe is the biggest advocate is pushing  
18    this thing. So 2005 is the deadline for Dell to  
19    have all their products lead free. And Apple is  
20    beginning to select a few products right now that  
21    they want us to do in lead-free form. And slowly  
22    it's all going to move lead free.

23          But I don't think lead free or non lead  
24    free has anything to do with the efficiency part.  
25    They're totally independent.

1           MR. WILSON: But in terms of the  
2           engineering complexity, I know that California  
3           has, I can't quite characterize this correctly,  
4           but there's some January '07 deadline. I don't  
5           know if that is for lead-free components or not.  
6           I know Dave Cassano from Apple is back here; he's  
7           ready to explain this to me.

8                     But I'll just ask you, is it a problem  
9           to have lead-free products by that deadline?

10          MR. SHER-JAN: Not really. Actually  
11          majority of the component manufacturers have  
12          already switched over to lead free. Especially on  
13          the, you know, SNT off-the-shelf components like  
14          small resisters and capacitors. Right now they're  
15          making lead free and non lead free, and actually  
16          cost is no longer an issue on the component side  
17          that much.

18                 Initially there were concerns that the  
19          cost of lead-free components would be much higher  
20          than the non lead-free parts. There are some cost  
21          impact on the process side because they're getting  
22          rid of lead, and some technologies, they use  
23          silver and that adds additional cost to the  
24          process inside. But even that's coming down.

25                 So, yeah, there's going to be a little

1 transition. When you go through the transition  
2 there's going to be some cost impact. But, you  
3 know, as everybody converts over the volumes go up  
4 and then the costs are going to come down to  
5 where, to non lead-free components and designs are  
6 going to be --

7 MR. WILSON: Good, thank you.

8 MR. SHER-JAN: All right?

9 PRESIDING MEMBER PFANNENSTIEL: Thank  
10 you.

11 MR. TUTT: Thanks, Abdul. Chris, I  
12 actually don't have any blue cards from  
13 manufacturers, I believe, in front of me. But if  
14 one wants -- if you want to come and talk now,  
15 that would be fine.

16 MR. CALWELL: Do you want to go to Power  
17 Integrations and talk now? Chuck is here, also,  
18 from ON Semi.

19 MR. TUTT: Okay.

20 MR. MATTHEWS: Hi, I'm Mike Matthews  
21 from Power Integrations. We're a California  
22 company based in San Jose. We manufacture control  
23 ICs for switching power supplies. Our specific  
24 target is energy efficiency, but also low cost.

25 To give you a little flavor of our

1 business, last year we shipped around 250 million  
2 ICs specifically into AC/DC power supplies. So to  
3 achieve that sort of volume, of course, you have  
4 to be cost effective.

5 I was asked by Chris to come down today  
6 and make a few comments on some of the issues that  
7 have been raised. And one of them was backwards  
8 compatibility, so I also chose to use some  
9 hardware here to demonstrate some of this.

10 The question apparently had arisen  
11 whether the use of a linear transformer type power  
12 supply of this type would have any compatibility  
13 issues if the exact same power supply was made  
14 with more up-to-date technology of switching power  
15 supply technology.

16 Just to illustrate this, this was a --  
17 this is actually about 18 months old now, but this  
18 was an MP3 player from Sony. In the U.S. it came  
19 with this linear transformer. In Japan it came  
20 with this switching power supply.

21 So the actual nameplate power levels on  
22 both of these identical, both 5.5 volts, 800  
23 milliamps. As far as the unit, itself, is  
24 concerned, as long as those volts and the current  
25 rating is identical, it has no idea what it's

1       being fed wrong.

2               In no-load operation actually this  
3       particular switching power supply there were no  
4       requirements for no-load, very low no-load, and  
5       operation. So this particular switching power  
6       supply was very small and very efficient during  
7       full-load operation. In no-load it's not  
8       particularly efficient.

9               This is a very similar power supply  
10       using one of our eco-smart chips. It has the same  
11       power capability, same power rating as this power  
12       supply. And it reduces the no-load consumption by  
13       an order of magnitude. This has about 60  
14       milliwatts. I think the proposal is -- is it 500  
15       milliwatts?

16              So in terms of backward compatibility  
17       that clearly isn't an issue as long as the volts  
18       and the currents are compatible.

19              The other thing was EMI that had been  
20       raised. It's true that linear transformers have  
21       very low electromagnetic interference; there's no  
22       switching inside those power supplies.

23              But equally, in order to be cost  
24       effective against these, and as you can see, the  
25       fact that this same power supply was used with the

1 same product in different regions indicates that  
2 the cost efficiency of these switching power  
3 supplies now is very close, if not equal, to the  
4 linear transformers.

5 The EMI of this power supply in common  
6 with all of the 250 million units that we shipped  
7 last year, the end customers for those units have  
8 to pass EMI. It's internationally agreed  
9 standards. The EMI components in here are just a  
10 few cents; it's a couple of inductors and some  
11 resistors.

12 And then one of the other issues that I  
13 gathered from the presentation we saw a few  
14 minutes ago that may be worth covering is the cost  
15 effectiveness of this technology versus the more  
16 traditional linear transformer technologies. This  
17 example, an MP3 player, may be a, you know, \$100  
18 type component.

19 But the range of customers we looked at  
20 our customer base prior to me coming in today, and  
21 cellular telephones is one of the biggest  
22 applications for our chips. Those are all battery  
23 chargers, of course, so that -- I realize that,  
24 the definition of battery chargers with respect to  
25 accidental power supply efficiency is quite

1 critical, because clearly a very large number of  
2 the external power supplies are used as battery  
3 chargers; and cell phones, of course, a huge  
4 market.

5 But we also address customers who make  
6 electric toothbrushes, for example, which are very  
7 very low-cost components. DVDs, virtually all  
8 DVDs now, even the \$29.95 Fry's Electronics DVDs,  
9 all use switching power supplies, highly  
10 efficient. In fact, most of our customers demand  
11 less than one watt in standby for DVDs. I think  
12 your proposal is significantly higher than that.  
13 So certainly all the customers that we work with,  
14 we're being asked to achieve a much lower standby  
15 power than is being recommended here.

16 And then a number of (inaudible)  
17 customers, appliances and so on, that's actually  
18 one of the biggest growing markets for us.

19 Just one other question. I noticed it  
20 came up again, was safety regulations and the  
21 possibility that any energy efficiency standards  
22 might compromise safety in any way.

23 Again, all of these products, both these  
24 linear transformers with the switchable power  
25 supplies, including these highly energy efficient

1 switchable power supplies, again they have to meet  
2 universally agreed international standards. UL in  
3 the U.S., and there are various safety standards  
4 bodies around the world that each one of these  
5 power supplies has to meet.

6 So those requirements are well  
7 understood. And, again, very cost effectively met  
8 in all of these power supplies.

9 I also just brought along a little demo  
10 unit that we sometimes use with -- people can look  
11 at it afterwards -- basically there's two plug  
12 sockets on there where you can plug these various  
13 products in. In fact, if anybody has a cell phone  
14 charger they want to come and look at how much no-  
15 load consumption it was taking, you plug it in and  
16 there are displays on there that shows the number  
17 of watts that are being taken by those products.

18 Okay, thank you.

19 MR. TUTT: Thank you.

20 PRESIDING MEMBER PFANNENSTIEL: Thank  
21 you. Can you just, on the three devices you  
22 showed, the external power supply, are those  
23 different ages? I mean are those developed in  
24 different years, and therefore we're looking at an  
25 improvement?

1 I know that they came from different  
2 countries. But are they also different  
3 generations?

4 MR. MATTHEWS: Well, I believe actually  
5 now I believe that the MP3 player in the U.S. has  
6 also started to ship this product. This was a few  
7 years old. This particular transformer is very  
8 old technology because this is copper and iron.  
9 It's been around for 100 years or so.

10 Clearly the technology that's being used  
11 in here, and there are multiple sources, not just  
12 Power Integrations, there are many. ON  
13 Semiconductor, I believe they're going to talk  
14 shortly. ST Microtronics has another one;  
15 Phillips and so on.

16 This technology is being developed  
17 probably in -- the switchable power supply  
18 technology has being developed probably over the  
19 last sort of 30 years or so. The drive for energy  
20 efficiency specifically at lights or no-load  
21 conditions is being driven more recently because  
22 of the nature of the types of products that are  
23 being used. These are being used in cell phones,  
24 as a classic, where the thing is plugged in under  
25 the desk. The cell phone is disconnected and it

1 just remains in the plug socket.

2 So that technology, we've introduced all  
3 of our products since 1998, have had what we call  
4 EcoSmart technology, which takes care of standby  
5 and no-load conditions.

6 And it might be one other point just to  
7 make is the, I'm not sure if you're aware that the  
8 European Union or European Commission has  
9 implemented standards for no-load in external  
10 power supplies and battery chargers for several  
11 years now.

12 And I think the reason that they found  
13 that was a very simple proposal to put forward is  
14 that although not every application has a true no-  
15 load application and no-load condition, it  
16 nevertheless, once you meet that no-load condition  
17 it almost inherently implies that the full load  
18 efficiency and the operating efficiency under  
19 other load conditions is relatively high.

20 So it's a very simple way of making the  
21 proposal without having very complex, you know,  
22 exceptions and so on for different applications.

23 MR. TUTT: Thank you.

24 COMMISSIONER ROSENFELD: I guess I have  
25 a question. You say that the European communities

1 had these mandatory standards for several years?

2 MR. MATTHEWS: No, they're voluntary  
3 standards.

4 COMMISSIONER ROSENFELD: They're  
5 voluntary standards.

6 MR. MATTHEWS: Yeah, they're voluntary.  
7 Various members of the -- you know, various  
8 industries that are represented as using external  
9 power supplies have signed up to those standards.  
10 But you can see that on the energy European  
11 Commission website, the external power supply  
12 standards.

13 MR. TUTT: And how does that definition  
14 or standard, that voluntary standard compare to  
15 what we're proposing today?

16 MR. MATTHEWS: It's somewhat tighter,  
17 actually, in terms of no-load consumption. And it  
18 doesn't have the full-load efficiency measurement  
19 standards. Again, they relied very heavy, I  
20 think, on the no-load performance as an indication  
21 of efficiency under other load conditions. Makes  
22 it very simple to measure, of course. And they  
23 also include AC to DC and AC to AC supplies.

24 But, in answer to your question  
25 directly, they have put forward the 300

1 milliwatts, which is 200 milliwatts lower than the  
2 standard being proposed here. Even though the  
3 ampere voltage is twice the ampere voltage in the  
4 U.S., which makes it actually more difficult.  
5 Europe is 230 volts not 110 volts. So it makes it  
6 actually more difficult to meet.

7 But it seems that virtually all external  
8 power supplies and battery chargers in Europe meet  
9 that spec now.

10 MR. TUTT: Thank you. John.

11 MR. WILSON: Mike, could you give us now  
12 or later that reference to the international  
13 standard for EMI? Just like to know what that is.  
14 And later is fine if you don't have that on the  
15 top of your head.

16 MR. MATTHEWS: Yeah, I know the Euronorm  
17 standard, which is EN55022 is the EMI standard,  
18 which is generally referred to even for the U.S.  
19 products, as well. But I can get you all the  
20 international, basically they're all, as I  
21 remember, they all end up with the numbers 22.  
22 The Euronorm standard is 55022. CISPR has a  
23 standard, CISPR 22, as well.

24 But those EMI standards are the same  
25 globally for all of the products that -- all of

1 the chips that we supply to our customers. Our  
2 customers have to build them into circuits which  
3 meet those EMI standards.

4 MR. WILSON: And I wanted to ask you a  
5 general question about your reaction to the AHAM  
6 comments about constant voltage versus constant  
7 current challenges, and why a better charger is  
8 different than a different kind of external power  
9 supply. And also any safety issues associated  
10 with a power supply that's charging batteries  
11 versus doing something else.

12 MR. MATTHEWS: I think some of the  
13 curves that we saw we might have to look again at  
14 those. Some of the regulation of the ampere  
15 voltage against -- current, depending on, you  
16 know, what stage of the charging the battery, the  
17 device is at.

18 The regulation of the ampere voltage is  
19 really a function of the external adapter.  
20 Traditional linear transformers tend to have a  
21 rather sloping characteristic, whereas the  
22 switching power supplies typically have a flatter  
23 characteristic, which means that the voltage is  
24 very well regulated under all load conditions.  
25 Rather than changing with various load conditions.

1           That inherently has a big influence on  
2           the overall efficiency of the unit. And I agree  
3           with the comment that the overall power  
4           consumption is, of course, a function of what's  
5           inside the unit, which is charging the battery, as  
6           well as the external adapter or charger.

7           However, having a tightly regulated  
8           output from the brick that plugs into the wall  
9           significantly improves the energy efficiency, and  
10          the switching power supplies tend to have much  
11          tighter output voltage regulation than the  
12          traditional one regulating linears.

13          MR. WILSON: So to see if I can  
14          paraphrase that, it's a design consideration, but  
15          you can design -- you can use an energy efficient  
16          power supply in a battery charging system?

17          MR. MATTHEWS: Oh, absolutely. In fact,  
18          the majority of our 250 million units are shipped  
19          into battery chargers. Absolutely, so, yes.

20          MR. WILSON: Thank you.

21          MR. TUTT: Chris, is there another  
22          manufacturer that you are --

23          MR. CALWELL: Yeah, there's one more  
24          manufacturer here. Chuck Mullett from ON Semi.

25          MR. MULLETT: Can I use the projector?

1 Try, right. Okay.

2 MR. TUTT: Again, while you're setting  
3 that up I'd encourage you to docket your  
4 presentation when you have a chance.

5 MR. MULLETT: Yeah.

6 (Pause.)

7 MR. FERNSTROM: In case you need to  
8 charge your batteries we have some chargers over  
9 here.

10 (Laughter.)

11 MR. MULLETT: Hey, cool. I'm trying to  
12 discharge my battery but I'm not making it.

13 Well, I think I'll not try to suffer  
14 through this thing. You have copies of the  
15 presentation. I wish I could show it to the rest  
16 of the audience, however; and I wish we could make  
17 this thing work.

18 (Pause.)

19 MR. MULLETT: Let's forget it; let me  
20 just talk.

21 PRESIDING MEMBER PFANNENSTIEL: There  
22 are a couple extra copies of the presentation  
23 here; and a few others in the audience could get  
24 them.

25 MR. MULLETT: I'm not here to refute

1 anything said by any of the other speakers.

2 There's a lot of truth in everything that I've  
3 heard.

4 PRESIDING MEMBER PFANNENSTIEL: Excuse  
5 me, perhaps if you want to go to the microphone  
6 here or over here.

7 MR. MULLETT: This will work, okay. My  
8 company makes the semiconductors that enable these  
9 high efficiency techniques to make high efficiency  
10 power supplies.

11 MR. TUTT: Excuse me, could you state  
12 your name for the record?

13 MR. MULLETT: Yeah, my name is Chuck  
14 Mullett. I'm the Principal Systems Engineer at ON  
15 Semiconductor. ON Semiconductor is a global,  
16 about a billion dollars in sales, maybe 1.5  
17 billion, worldwide. We were split off from  
18 Motorola about five years ago.

19 So, we'd like to sell the semiconductors  
20 that go into these gadgets. And if everybody wins  
21 and sells power supplies that are efficient, why  
22 that would be lovely.

23 I have studied the techniques of  
24 charging of these batteries and I'd like to point  
25 out that there are really three modes of operation

1 of these appliance chargers.

2 One of them is, of course, when the  
3 charger is connected to the screwdriver or tool or  
4 DustBuster or whatever, and it's charging the  
5 battery. Now, that goes on for maybe five to ten  
6 hours, and at that time that battery is fully  
7 charged. It was designed to do that because folks  
8 want to get it charged overnight so they use it  
9 again the next day.

10 Most of them, the cheap ones anyway,  
11 after the battery is fully charged, continue to  
12 pour that same amount of energy into the battery  
13 forever. And the batteries are designed to handle  
14 that. And if you read the design manual on nicad  
15 batteries it says that you can charge them like  
16 that forever and it's okay. So you can make a  
17 real cheap charger by letting that happen.

18 I call that the maintenance mode because  
19 the battery is still connected although it's fully  
20 charged.

21 There's a third mode which is when the  
22 battery is disconnected -- or the tool is  
23 disconnected from the charger, of course, and  
24 that's when you're using it. Or if you leave it  
25 on the shelf and don't reconnect it to the

1 charger.

2 Now, I don't know about you but in my  
3 house we don't leave them disconnected from the  
4 charger. My DustBuster sits in the charging rack;  
5 my screwdrivers and electric drills are all  
6 connected, because if I leave them disconnected  
7 for a few weeks then when I come to use them  
8 they've discharged themselves because of the  
9 internal leakage of the battery. So I've learned  
10 not to do that.

11 So, anyway, I think that the present  
12 testing procedure doesn't really address the whole  
13 picture. And for that reason I am in favor of  
14 putting it off until we get it right.

15 In other words I agree with the EPA  
16 position at this point. I think it is indeed more  
17 complex, but we need to fix it, but we need a  
18 little more time.

19 So I've described now the general  
20 routine with the simple chargers. The tool is  
21 used; it's then put back together with the  
22 charger; the charger charges that battery up in a  
23 few hours; and from then on it just keeps pouring  
24 the coal to it.

25 If you think about the amount of time

1       that the tool gets used, unless you're a workman  
2       in a construction site and using this screwdriver  
3       all the time, which is, I think, a small part of  
4       the whole picture, you're probably like me. You  
5       have a couple of these cordless screwdrivers  
6       kicking around the house and a DustBuster, and  
7       I'll bet you our DustBuster gets used about maybe  
8       an hour a month, something like that. My cordless  
9       screwdrivers probably get used an hour a month or  
10      so.

11               And so I guess my first point is to make  
12      the charging process more efficient is a nice  
13      idea, but it's in the grand scheme of things, a  
14      very small part of the whole action.

15               Also, to attack the standby situation  
16      where it's not connected to the tool at all  
17      probably isn't going to make a big difference in  
18      the price of eggs in the global picture because  
19      most of us don't even put it in that mode except  
20      when we take it off and use it for an hour. A  
21      pretty small time out of a month.

22               So, today with this large number of  
23      devices, the vast majority of these -- I heard the  
24      price \$20, maybe \$25 or \$30, but sure enough, ten  
25      bucks you can buy them. The wasted energy in

1       those guys, that energy is dissipated in the  
2       battery and the charger long after the battery is  
3       charged. Payback from attacking that problem is  
4       orders of magnitude greater than the other two.

5               So, I think we need to attack all three,  
6       but that particular situation is lacking in the  
7       proposed testing routine and so on. So I say  
8       until we address that thing and get it properly  
9       addressed and fixed, we probably ought to wait  
10      till we get it right.

11             There is indeed technology to tackle all  
12      of these problems. You heard from PI; they have  
13      the offline solution which replaces the 60 cycle  
14      transformer with very efficient circuitry. And I  
15      think while they're at it, they address this  
16      problem of cutting back the charge to what we call  
17      a trickle charge after the battery is charged.  
18      This is going on, by the way, in a lot of cell  
19      phones and more intelligent chargers where there's  
20      a lot of smarts in the charger.

21             With regard to putting something --  
22      deleting the 60 cycle transformer alone, and I've  
23      given you a picture of that -- that's in slide 6  
24      of your handout -- the approach that I've  
25      described here is one where you could make a

1       tremendous improvement in the situation by not  
2       even touching the so-called charger, which is the  
3       60 cycle transformer that plugs into the wall.  If  
4       you totally leave that thing alone, don't even  
5       touch it, and go into where the rectifier is in  
6       the tool and replace that with a device that would  
7       shut the charge off after some arbitrary time.  
8       Doesn't even have to be very smart, ten hours,  
9       let's say.  And at that point just throttle that  
10      sucker back to the trickle charge.

11               Then you've got rid of well over 99  
12      percent of all the losses.  And that's not a real  
13      expensive thing to do.  It isn't free, but here's  
14      a circuit that would do that and actually there's  
15      more on here than you really need.  But this is an  
16      example.

17               And in the couple of drills I've taken  
18      apart there's plenty of room to throw a little  
19      circuit-like in there.  Probably cost a dollar in  
20      large quantity to the tool manufacturers.  And so  
21      if they're getting really good markups and good  
22      profit, that would impact the selling price by  
23      maybe five bucks, probably more like three or four  
24      dollars, because they're probably on pretty tight  
25      margins.

1           But, anyway, I think I guess my pitch is  
2       we need to look at the whole picture and we  
3       haven't done that yet. But the solutions are  
4       there. We make the solutions; our competitors  
5       make the solutions. And this is a big enough  
6       market to get our attention.

7           So that's kind of my pitch. I hope this  
8       has helped you get a little more insight into the  
9       global picture of these appliance chargings. Are  
10      there any questions that I could address?

11          MR. TUTT: I wondered if you'd comment  
12      on, you mentioned in your presentation cordless  
13      screwdrivers and vacuum cleaners, but as we heard  
14      earlier this afternoon, a sharply growing amount  
15      of external power supply battery chargers that are  
16      used with cell phones and personal digital  
17      assistance and other things like that, where they  
18      do remain plugged in most of the time while the  
19      actual apparatus is often carried around by that  
20      person.

21          MR. MULLEN: Um-hum, okay. Yeah, I'll  
22      be happy to comment on that. As some of the test  
23      data that Chris has, has shown, and also  
24      measurements that I, personally, have made, if you  
25      take the -- we call them wall warts -- that you

1       get with your little six volt cordless drill or  
2       whatever, or with cell phones or whatever, if they  
3       have only a little 60 cycle transformer in there,  
4       those transformers are designed to minimize cost.

5               They have just enough iron and copper in  
6       there to get the job done. And, as a result of  
7       that, they have residual losses. The one that I  
8       looked at is six-tenths of a watt, and we're  
9       shooting for five-tenths of a watt.

10              Well, that same transformer could be  
11       improved to under five-tenths of a watt at a  
12       little added cost without changing the general  
13       approach to the problem.

14              The solid state solution that PI has  
15       proposed fixes that problem very very well. And  
16       we also make components that do that. And sure  
17       enough, when you replace the transformer with a  
18       little solid state power converter that is highly  
19       efficient and is particularly designed to go into  
20       what we call a standby mode when there's no load  
21       on it, the state of the art is 50 to 100  
22       milliwatts of residual power consumption.

23              Did that answer that question?

24              MR. TUTT: Yes, thank you.

25              MR. MULLEN: Okay, but it isn't free.

1 But it sure is small.

2 MR. TUTT: Great, thank you.

3 MR. MULLEN: Okay.

4 PRESIDING MEMBER PFANNENSTIEL: Thank  
5 you.

6 MR. TUTT: Any other -- John.

7 MR. WILSON: Chuck, I wanted to ask you  
8 the same general question I asked Mike Matthews,  
9 and that is your general response to the AHAM  
10 argument about battery chargers being different  
11 than other kinds of external power supplies.

12 Also part of that is I guess my own  
13 frustration that when we're trying to regulate  
14 energy efficiency we're frequently confronted with  
15 situations where people say, you know, don't solve  
16 this problem until you can also solve this larger  
17 problem.

18 And, you know, I understand your concern  
19 about battery chargers and looking at systems.  
20 And we certainly intend on looking at that. I  
21 think everybody in the room agrees that we should  
22 look at the overall efficiency of battery charging  
23 systems.

24 But is there a reason why we shouldn't  
25 also look at power supplies, themselves,

1       regardless of what kind of a system they're in?

2               MR. MULLEN:  I certainly agree you  
3       should look at power supplies.  And there's the  
4       laptop adapters, certainly, I mean that's very  
5       important.

6               The problem with the -- the laptop  
7       adapter has some circuitry in the computer that is  
8       smart to regulate the charge to the battery.  So  
9       there's some intelligence in there, more than you  
10      find in the \$20 cordless drill.

11              The problem with the \$20 cordless drill  
12      is it's really dumb.  I mean it just sits there  
13      and accepts this charging power that's been given  
14      to it during the charging process, and that power  
15      just continues and it's wasted.  And my argument  
16      there is that we haven't even thought about that  
17      in this proposed spec and we need to.

18              If we tackle the efficiency of the  
19      charging process, which is the active mode  
20      consumption that we all know about, in the charger  
21      application with the appliances, it has very  
22      little impact.  And the standby thing is almost  
23      the same way.  Because how many people disconnect  
24      their DustBuster and leave it disconnected from  
25      the charging rack after they're done using it.

1 You see what I'm saying?

2 MR. WILSON: No, I don't, actually.

3 MR. MULLEN: Oh, I'm sorry. I guess --

4 MR. WILSON: I can accept that some  
5 battery systems in cheap drills waste a lot of  
6 energy, but if you make a more efficient power  
7 supply that's, let's say it's 30 percent more  
8 efficient, you're at least wasting one-third less  
9 energy than the crummy drill that would otherwise  
10 use.

11 MR. MULLEN: Certainly, you can't argue  
12 with that. We deliver the wasted power with more  
13 efficiency.

14 (Laughter.)

15 MR. MULLEN: And that certainly is true.  
16 It's like you're filling this bucket with water  
17 and this bucket of water is a battery, and you're  
18 charging this thing by pouring water into the  
19 bucket. As soon as you're done filling the bucket  
20 you keep the water flowing and it spills all over  
21 the floor and floods the house. And if you cut  
22 that flow down 20 or 30 percent, you're still  
23 going to flood the house.

24 MR. WILSON: But if you're paying for  
25 the water, at least you're paying less.

1 MR. MULLEN: Exactly true. Exactly  
2 true. Yeah, can't argue with that. Can't argue  
3 with that. It's such an inelegant solution  
4 compared to the way it really ought to be done, I  
5 guess. And if it impedes the ultimate solution to  
6 the problem by making everybody do busy-work so  
7 they don't get the other job done, then it's a net  
8 loss.

9 MR. TUTT: Okay, thank you. Jonathan,  
10 were you going to say something or --

11 MR. BLEES: I have a couple questions.

12 COMMISSIONER ROSENFELD: Go ahead, Jon.

13 MR. BLEES: Thank you, sir. As I  
14 understand the essence of your message it's don't  
15 concentrate on the battery charger, or at least in  
16 addition to concentrating on the battery charger,  
17 concentrate on the thing that it's charging,  
18 right?

19 MR. MULLEN: No, concentrate on the  
20 whole package.

21 MR. BLEES: Okay, concentrate on the  
22 whole package.

23 MR. MULLEN: Yeah.

24 MR. BLEES: What can the Energy  
25 Commission do on the tool side of the package, or,

1       you know, the drill or DustBuster side of the  
2       package? What would you like this government  
3       agency to do?

4               MR. MULLEN: Without touching the wall  
5       wart, or the charger --

6               MR. BLEES: I don't know, with or  
7       without.

8               MR. MULLEN: Well, --

9               MR. BLEES: I mean if you --

10              MR. MULLEN: -- yeah, let me talk about  
11       that.

12              MR. BLEES: If you don't want your  
13       presentation to wind up on a dusty shelf somewhere  
14       what's the next step you would like to see the  
15       Energy Commission do? I mean we're a regulatory  
16       agency and we're an agency that provides money for  
17       some research and development. We can collect  
18       data on things; we can require things to be  
19       labeled; we can require things to have certain  
20       efficiencies; or as I said, in some cases we can  
21       provide money for R&D.

22              What should we do?

23              MR. MULLEN: Okay, --

24              MR. BLEES: Drills are stupid, we want  
25       to make them smarter. What should we do?

1           MR. MULLEN: Okay. If you want to work  
2 only on the drill --

3           MR. BLEES: I'm sorry, we want to make  
4 the whole package smarter, what should we do?

5           MR. MULLEN: Let me address the first  
6 part. If you just work on the drill, you can do  
7 something like this. If we replace the rectifier  
8 diode in the drill with a smart little circuit  
9 that simply shuts off after ten hours, then we've  
10 saved a couple, three watts of power. But we  
11 still are left with that standby power in the wall  
12 wart that's over a half a watt, or hovering right  
13 around a half a watt, okay.

14           So, we've done a lot of good, but we can  
15 gain -- we can take that half a watt and not get  
16 the 20 milliwatts by doing some work in the wall  
17 charger.

18           So, it's really a two-step; that's why  
19 you have to look at the whole thing. You see what  
20 I'm saying?

21           If I make the wall wart, the charging  
22 process, much more efficient, and don't fix the  
23 problem of shutting it down after the battery is  
24 charged, then I've done the thing we talked about  
25 a little earlier, which is we've taken the waste

1 and done it, and we've wasted the power more  
2 efficiently. Okay.

3 If we shut the thing down and don't mess  
4 with the other part, then we've throttled down to  
5 a low level that instead of 3 watts, it's a half a  
6 watt. But that could be 50 or 100 milliwatts if  
7 we do the rest of the job. It's really the whole  
8 package --

9 COMMISSIONER ROSENFELD: Well, Chuck, it  
10 seems as if what you're saying -- first of all,  
11 what you're saying makes a complete, a lot of  
12 sense. If you're over-charging the battery 90  
13 percent of the time with your flood of unneeded  
14 water, then you should go after the flood of  
15 unneeded water.

16 Why can't we have basically the criteria  
17 which we have now, plus the additional criteria  
18 that after the battery is charged, and maybe you  
19 say that's ten hours, that the total drain on the  
20 system should be less than half a watt?

21 MR. MULLEN: That's a possible solution,  
22 yeah. That gets out of three watts of total  
23 wasted power that's flowing over the bucket after  
24 it's all charged. If you knock that down to a  
25 half a watt you gain 2.5 watts of waste, which is

1 very very good.

2 Then I said, well, gee, you know, the  
3 next step is to take that half a watt and knock it  
4 to 50 milliwatts. Do you want to do that in two  
5 steps, or do you want to do it all in one step.  
6 And that's really a choice because I think that in  
7 a fairly short time you could say, gee, after ten  
8 hours you got to knock it to a half a watt.  
9 Sounds pretty simple, right?

10 COMMISSIONER ROSENFELD: Yes, to me.

11 MR. MULLEN: Or do you work on the whole  
12 problem and take another half a year or so and  
13 solve it all in one shot. I have no idea of the  
14 cost of doing these regulations and all of the  
15 administrative work that has to go on in order to  
16 do it.

17 COMMISSIONER ROSENFELD: Maybe Chris is  
18 going to comment on that issue.

19 MR. CALWELL: Yeah, I think I would  
20 wait, and I'll just give my comments together as a  
21 group, if that makes sense. I know, Gary, you had  
22 a comment.

23 COMMISSIONER ROSENFELD: Oh, okay.  
24 Sorry.

25 MR. FERNSTROM: Okay, so I just have a

1 quick comment. I, too, see the opportunity for  
2 reducing the loss in the voltage reduction device,  
3 the wall wart, as well as reducing the battery  
4 charging loss when the battery is fully charged.

5 We, at one point, had a proposal for  
6 looking at the current or power the battery is  
7 taking when it's fully charged. We were convinced  
8 that there are different kinds of batteries that  
9 have different requirements for maintaining their  
10 charge once they get to be fully charged. And  
11 that would lead to a regulation that might have  
12 many categories. And we probably couldn't get  
13 that done in the time we had.

14 So we focused on the standby. What's  
15 wrong with doing this in two steps? I don't think  
16 that focusing on the standby loss first is going  
17 to adversely affect our opportunity to look at the  
18 other part of the system later.

19 MR. MULLEN: I shouldn't comment on that  
20 because I don't have an informed opinion about it.

21 MR. TUTT: Okay, thank you. Chris, I  
22 know you have comments here. We have a few other  
23 blue cards, and we're at 3:00. So, if you can  
24 keep them kind of short, --

25 MR. CALWELL: Yes.

1 MR. TUTT: -- that would be great.

2 MR. CALWELL: As you know I'm not that  
3 interested in power supplies, so I don't have much  
4 to say.

5 (Laughter.)

6 MR. CALWELL: My name is Chris Calwell;  
7 I'm with ECOS Consulting. I wanted to bring us  
8 back to the core of what we're discussing here  
9 today.

10 The proposed standard before the  
11 Commission focuses simply and solely on the  
12 efficiency of power conversion. This is speaking  
13 to Jon's question earlier. The standard aims to  
14 reduce the amount of energy wasted when high  
15 voltage AC is converted to low voltage DC or AC.  
16 And it does so in two ways, both of which we've  
17 talked about today.

18 It improves the active mode efficiency  
19 when the device is operating, and it minimizes the  
20 consumption in the no-load condition when the  
21 device is not operating, but still plugged in.  
22 That's the simple core of this proposal.

23 Industry has expressed a preference in  
24 general for efficiency levels that are largely  
25 similar around the world, especially for products

1 sold into a global marketplace, like external  
2 power supplies. So the process of that internal  
3 coordination has been underway since early 2002,  
4 as Michael mentioned before.

5 And as a result the test procedure that  
6 the California Energy Commission funded ECOS  
7 Consulting to develop is now being recommended and  
8 adopted for use in California, the U.S. Energy-  
9 Star program, Australia, China, Europe, Canada and  
10 Brazil. And then there are other regions like  
11 Taiwan and Korea, Japan and so forth, as well as  
12 the developing world that I think are likely to  
13 follow that same test procedure and set of  
14 definitions after those are formalized through the  
15 IEC.

16 So this explains in part why the trade  
17 association that represents the power supply  
18 industry, which is the Power Sources Manufacturers  
19 Association, said the following in the written  
20 comments they submitted to the Commission October  
21 7th. Simply put, they said: PSMA fully supports  
22 the efficiency initiatives now in progress."  
23 That's the trade association representing the  
24 affected industry that makes power supplies.

25 PSMA also expressed a preference for

1 multi-tiered efficiency specs that are closely  
2 coordinated internationally with a common product-  
3 marking approach to foster continuous improvement  
4 and efficiency. Again, that's what California's  
5 proposal is. A tier one and a tier two, adopted  
6 in coordination with other agencies around the  
7 world.

8 As a result I think you could say that  
9 California's proposed efficiency standards are  
10 closely coordinated internationally in scope,  
11 stringency, timing, test procedure, and product  
12 marketing. Moreso, I think, than any product  
13 category being discussed here today.

14 More than 800 product samples have been  
15 tested in China, the U.S. and Australia, including  
16 external power supplies that don't charge  
17 batteries, and external power supplies that do.

18 They've been combined in to a global  
19 database and they've been analyzed relative to  
20 proposed specification levels. Meetings have been  
21 held in the power supply manufacturing regions of  
22 China and in Beijing; they've been held in San  
23 Francisco, here in Sacramento, in Anaheim. There  
24 have been ongoing meetings of a similar type in  
25 Europe and Canada.

1           The only stakeholders in any of those  
2 meetings that have raised the issue of broadly  
3 exempting the power supplies whose power  
4 ultimately charges batteries are AHAM and Black  
5 and Decker.

6           And so EPA responded to those early  
7 concerns by exempting a number of power supply  
8 types on a technical basis.

9           What I wanted to furnish to the folks --  
10 Michael, would you be willing to give that to the  
11 Commissioners -- what I wanted to furnish to you  
12 then is a simple diagram --

13           MR. WILSON: We have those, if you want  
14 to hand them out --

15           MR. CALWELL: You have copies already?

16           MR. TUTT: We had them already, yes.

17           MR. CALWELL: Okay. So I'm referring to  
18 this colored diagram here. This diagram is taken  
19 out of draft three of the Energy-Star  
20 specification. And it is the current draft. No  
21 subsequent draft has been published by Energy-Star  
22 yet.

23           And this language, as shown on this  
24 diagram, specifies a simple set of questions that  
25 you ask to find out whether a power supply

1       qualifies for Energy-Star. The California Energy  
2       Commission adopted the identical language in the  
3       15-day language that Michael referenced before.

4               So there is no discontinuity or  
5       expansion of scope, or new introduction by the  
6       California Energy Commission beyond what was  
7       already being considered.

8               And what this does is it exempts power  
9       supplies from coverage if they are internal to a  
10      stand-alone battery charger; or if they physically  
11      attach directly to the batteries they're charging  
12      with no intermediate housing; or if they offer  
13      some sort of additional functionality like a  
14      multiple chemistry or battery type switch, or a  
15      state of charge meter, an indicator light.

16              So there's a set of extra things that we  
17      believed were raising power use in a highly  
18      functional battery charger that should not be  
19      compared fairly to an external power supply. But  
20      if that power supply is very simple and happens  
21      only to charge a battery, it's still included.

22              As I mentioned, the California Energy  
23      Commission has added those exact same exemptions  
24      to its language, and they're technically sound and  
25      straightforward because they focus on the

1 intrinsic qualities of the power supply, itself.

2 By contrast, the exemptions that were  
3 proposed by AHAM are not technically sound and  
4 they're not intrinsic to the power supply, itself.  
5 The exemption they proposed describes the range of  
6 cordless products that a company like Black and  
7 Decker would manufacture; cordless drills,  
8 flashlights, DustBuster vacuums, et cetera.

9 The language that they proposed reads as  
10 follows: External power supplies would be  
11 exempted if they're sold with flashlights and end-  
12 use products whose principal output is mechanical  
13 motion, the movement of air, or the production of  
14 heat."

15 So, imagine that you have an external  
16 power supply here and it's sending power to a  
17 battery charging housing here, connected to  
18 batteries here that are ultimately removed when  
19 fully charged and placed into a tool here. So  
20 there are these four things.

21 Why should this power supply over here  
22 be exempted because of the application that these  
23 batteries may eventually find themselves in here?  
24 Doesn't have anything to do with the intrinsic  
25 qualities or efficiency of the power supply,

1       itself.

2               Australia is not planning to offer the  
3       exemption that AHAM proposed. Europe is not  
4       planning. We heard before from Power Integrations  
5       that Europe broadly includes all power supplies  
6       and battery chargers. China is not planning to.  
7       And Energy-Star is deliberating whether or not to  
8       offer the exemption, but no draft has been  
9       published formally by Energy-Star offering such  
10      exemption.

11             I would discourage the Commission from  
12      offering the exemption, as well. Take the energy  
13      efficiency savings you can get in power conversion  
14      now, cost effective and readily available. And at  
15      a future date when the opportunity presents  
16      itself, convene a hearing to capture additional  
17      savings from the methods that Chuck described in  
18      improving the efficiency of battery charging.

19             Thanks.

20             MR. TUTT: Thank you, Chris.

21             PRESIDING MEMBER PFANNENSTIEL: Chris,  
22      just one quick question. You just said that  
23      Energy-Star has not removed the battery chargers  
24      from their regs. They're considering doing so?

25             MR. CALWELL: Yeah, Energy-Star has

1 published a sequence of drafts. And the most  
2 recent published draft that's been out for wide  
3 comment is what they call draft three. And I  
4 believe they may have shared some language that's  
5 under consideration with AHAM for a potential  
6 draft four, but such a draft has not been  
7 published yet.

8 PRESIDING MEMBER PFANNENSTIEL: Thank  
9 you.

10 MR. TUTT: Thanks, Chris. Dave Cassano.

11 MR. CASSANO: Hi, my name's Dave  
12 Cassano. I work for Apple. And thanks a lot for  
13 letting me bring my concerns here.

14 Essentially Apple looks at energy  
15 efficiency and other environmental criteria as  
16 being critical to our corporate image, and also to  
17 our customer base. So we're very interested in  
18 making this happen.

19 The only thing I would like to do is  
20 request that we have two things. Possibly a  
21 little bit more time to transition our product  
22 line over to meet the new requirements. And also  
23 an exemption for power supplies that are already  
24 being used as service parts for pre-existing  
25 equipment.

1           So those are the two things I'd like to  
2 request.

3           The reasons behind asking for more time  
4 is that 2005 is going to be a year that we're  
5 going to be spending a lot of time for the Ross  
6 transition, which is the lead-free change required  
7 by Europe. And this is affecting every product,  
8 every electronic product, not just the power  
9 supplies.

10          So there's a huge amount of engineering  
11 effort that's going into taking pin-compatible  
12 components and making it a lead-free process. To  
13 do something where you change the print circuit  
14 board at the same time, and transition to lead-  
15 free, it introduces a lot of potential problems,  
16 potential EMC problems, potential safety problems.  
17 Just not inherently due to the energy efficiency  
18 or the lead-free process, just the sheer amount of  
19 effort and diligence that it takes to put a  
20 product through the process and qualify it.

21          For example, if we change a design on a  
22 power supply, for example, we have to get I would  
23 say about five or six EMC qualifications in  
24 conjunction with the equipment that's using the  
25 power supply. Safety, there's probably about five

1 or six safety certifications we'd have to  
2 requalify.

3 And to, you know, start 2005 with a  
4 lead-free initiative plus transitioning over, you  
5 know, a number of power supplies that don't  
6 comply, and doing it within a one-year timeframe,  
7 it's going to be a -- it'll be hectic, at best;  
8 and potentially we'll miss something that causes  
9 compliance problems further down the road.

10 So, that's why I'm requesting that we  
11 could move the effective date for the power supply  
12 requirements to 2007. That would give us a good  
13 time to transition our product to lead-free and  
14 then some time, once we get the printed circuit  
15 boards that are presently using our power supplies  
16 qualified in the lead-free application, we could  
17 then redesign the boards and have the necessary  
18 time to test and qualify with our systems.

19 And as far as the exemption for service  
20 parts, this is something that's also being done in  
21 Europe for the lead-free initiative. They're not  
22 requiring that you go back and for like an iBook  
23 we sold in, you know, 1999 or 2000, create a lead-  
24 free version of that power supply. Because it  
25 would be more of an environmental impact to, you

1 know, basically recycle that product that's still  
2 useful, rather than have a service part available.

3 COMMISSIONER ROSENFELD: Service parts  
4 just means spare parts, with a low sales volume?

5 MR. CASSANO: It could be a spare part,  
6 or it could be a, you know, you want an adapter  
7 for a separate location or you're missing one on a  
8 trip or something like that. So you need to pick  
9 one up at a retail store.

10 So those are kind of the two points I'd  
11 like to at least request. And, you know, we  
12 definitely will comply. We're complied on most of  
13 our products, so it'll be a -- just in light of  
14 the effort for the lead-free transition, it would  
15 be nice to have some extra time.

16 MR. TUTT: I'm curious, though, David,  
17 if you're going through an engineering and testing  
18 and certification effort for lead-free, why would  
19 you want to do another one later? Why not do it  
20 at the same time?

21 MR. CASSANO: That would be ideal if we  
22 had a lot more head-count, you know. The economy  
23 looked firm enough where they start hiring people.

24 MR. TUTT: We need jobs.

25 (Laughter.)

1           MR. CASSANO: Well, I would definitely  
2 support that.

3           COMMISSIONER ROSENFELD: Jonathan's got  
4 a good idea. I mean Tim's got a good idea, sorry.

5           MR. CASSANO: But the fact is, we're  
6 trying to take pin compatible components in a  
7 lead-free form and plug it into our existing  
8 circuits. And that reduces the chance of  
9 introducing an EMC risk or a safety risk.

10          If we start redesigning the circuitry,  
11 you know, pretty much all bets are off. Plus we  
12 have to requalify with the existing equipment,  
13 where chances are if we do pin compatible lead-  
14 free components, you know, the qualification will  
15 go very smoothly.

16          MR. FERNSTROM: So I have a question  
17 about the replacement parts that I don't quite  
18 understand. I have the idea that the replacement  
19 part for the Apple product would be something like  
20 this. And there's no reason why, so long as the  
21 voltage and current is compatible, you might say,  
22 oh, this replacement item is no longer available,  
23 this does the same thing; use it instead.

24          MR. CASSANO: Yeah, there's -- to give  
25 you an example, our products went from being

1       probably about two inches thick to one inch thick.

2       And so what we had to do was shrink the actual  
3       connector that goes into the product.  So, just to  
4       fit that slim profile.

5               And plus, we're making changes if we  
6       have a higher power adapter, we have to have a  
7       different type of connector so we don't put too  
8       much power into the product.

9               So, the thing is we have older adapters  
10      for like 2000 products, the year 2000 products,  
11      that have a connector that's probably twice as  
12      big.  And the circuitry may be a little bit  
13      different; it may be 18.6 volts versus 24 on this.  
14      We haven't qualified, even if we have the right  
15      connector on the end, we haven't qualified this  
16      combination with the older product.

17              So it's a very, you know, when you start  
18      swapping out power supplies and mixing and  
19      matching the different products, it introduces a  
20      whole host of like safety problems and EMC  
21      problems.

22              Some of these are limited power, so we  
23      can get by with products without a fire enclosure.  
24      Some of them are not limited power, so if you used  
25      a non limited power AC adapter with something that

1       didn't have a fire enclosure, you could  
2       potentially start a fire and have it propagate.

3               So there's a lot of little -- they all  
4       look the same, but there's a lot of little minor  
5       details in each power adapter that makes it  
6       unique. At least for products that Apple is  
7       selling. And some other companies, I know, are  
8       doing the same thing.

9               MR. FERNSTROM: Okay, thank you.

10              MR. CALWELL: Just a quick question. Is  
11       it possible that the products for service were, in  
12       fact, already manufactured, and so they're  
13       remaining in inventory? Remember the question  
14       came up earlier today about whether it's  
15       manufactured after the date of the standard. And  
16       I just wondered if that would solve your concern  
17       about service.

18              MR. CASSANO: Yeah, if our material  
19       planners are dead-on, we're okay. And we may  
20       have, even that, you know, it depends on the  
21       optimum order quantities. So, --

22              MR. CALWELL: So you may have to  
23       manufacture the new service parts?

24              MR. CASSANO: Yes. We always keep the,  
25       you know, the capability for our contractors to

1 make those parts. We need them.

2 And in the case of like a recall or  
3 something like that, you need that ability to  
4 recreate a product, you know, slightly different,  
5 but you may not want to redesign it to the point  
6 of complying with these requirements.

7 MR. TUTT: Okay, thank you, David. Any  
8 other questions? John.

9 MR. WILSON: Dave, just to be clear on  
10 the dates again, I think the EU requirements take  
11 effect July '06, and California takes effect  
12 January '07, is that right?

13 MR. CASSANO: Yeah, I believe SB-50, I'm  
14 not sure -- the effective date on it is you have  
15 to start reporting the quantities of like lead and  
16 cadmium, things like that. But I'm not sure if  
17 it's a pure restriction on those materials. I  
18 know they give an exception if you're making a  
19 lead-free product you only have to report on those  
20 parts of the product that are in exception to  
21 the -- like for a CRT, it has lead in the glass,  
22 so you'd only report on that amount of lead if the  
23 rest of it was lead-free.

24 So if you were making a non Europe  
25 product, I think you can still use lead in the

1 solder, but that you would have to report it on an  
2 annual basis to the -- I forget the name of the  
3 organization.

4 MR. WILSON: And if I understand your  
5 comments correctly, you're not concerned about the  
6 efficiency levels in the standards that we're  
7 talking about, you're concerned about the timing  
8 of it?

9 MR. CASSANO: Yeah, the efficiency  
10 levels, so far, is not a problem for us. But it's  
11 the standby mode, you know, the .75, especially in  
12 some of our larger adapters for displays. So, you  
13 know, we're close, but we can't say we meet the  
14 requirement. And we would have to redesign it.  
15 And it would be a significant redesign to get in  
16 lower.

17 MR. WILSON: But you will?

18 MR. CASSANO: If we have to, we have to.  
19 But, you know, I think some consideration of the  
20 global impact of other environmental regulations  
21 should be taken into consideration.

22 MR. WILSON: Um-hum. Thank you.

23 PRESIDING MEMBER PFANNENSTIEL: Thank  
24 you.

25 MR. CASSANO: Thank you.

1 MR. TUTT: Thank you. Emily Clayton.

2 MS. CLAYTON: Good afternoon, thank you.

3 My name's Emily Clayton and I am from CALPIRG.

4 We're a statewide consumer group.

5 And I just wanted to express my  
6 organization's firm support for these regulations  
7 on behalf of the consumers of California, who  
8 stand to save substantial amounts of money on the  
9 energy that's not going to be wasted, which we're  
10 pretty excited about.

11 And we are definitely in support of this  
12 regulation in particular, and would urge against  
13 giving the exception to battery chargers.  
14 Because, as other people before me have noted, of  
15 the huge growth in this industry, in particular.

16 Just looking at cell phone usage I think  
17 that everybody can see that even if we can adapt  
18 better regulations later on in the future, the  
19 millions of cell phones sold in California in the  
20 intervening amount of time would benefit from that  
21 standard.

22 And at this point we don't think that  
23 the perfect should be the enemy of the good when  
24 it comes to adopting these regulations.

25 Furthermore, as a general statement

1 about the regulations, we strongly support all of  
2 the consumer notification aspects of the proposed  
3 regulations, especially with regard to those  
4 products that don't fall under the Energy-Star  
5 categories. Because as somebody else previously  
6 noted, there's a wide variance in their  
7 performance and electricity consumption.

8 And we think that consumers definitely  
9 deserve to know what they're getting into, because  
10 they're going to be the ones footing the power  
11 bill later on down the line.

12 Further, my colleague, Bernadette del  
13 Chiaro, who also has a blue card up there, I  
14 think, with Environment California Research and  
15 Policy Center, couldn't stay, but wanted to also  
16 convey her organization's strong support for the  
17 proposed standards.

18 As California shifts its energy  
19 generation to renewable resources, continuing to  
20 aggressively reduce our overall consumption is  
21 absolutely a critical component, one that needs to  
22 be the foundation of the transformation.

23 In addition, on their own, these  
24 proposed standards will reduce thousands of tons  
25 of smog-forming and global warming pollution. And

1 Environment California Research and Policy Center  
2 would like to urge the Commission to adopt these  
3 standards quickly and move on to other items that  
4 have been left out of the consideration currently,  
5 such as set-top boxes.

6 Thank you.

7 PRESIDING MEMBER PFANNENSTIEL: Thank  
8 you very much.

9 MR. TUTT: Thanks, Emily. Last, Noah  
10 Horowitz on this issue.

11 MR. HOROWITZ: Thanks. Noah Horowitz  
12 with NRDC. A lot has been said, so in the sake of  
13 time I'll be brief.

14 The category we're looking at is a lot  
15 more than just the products AHAM has mentioned.  
16 While your market share may be relatively flat, or  
17 sales, things like laptops, cell phones, computer  
18 printers, MP3s are taking off. People not only  
19 have one of these in their home, they might have  
20 multiple ones of these in their home.

21 And many of them do have a rechargeable  
22 battery downstream. And that's okay. If we were  
23 to remove rechargeable systems that have  
24 rechargeable batteries the savings would greatly  
25 shrink here.

1           An example of a way to look at this is  
2       let's say, back to the car again -- I don't know  
3       where these analogies come from -- let's say your  
4       car has very low tire pressure. So you're  
5       automatically having a loss no matter what you do,  
6       how efficient your engine is, your oil, the size  
7       of your engine, et cetera.

8           That's the analogy here at the  
9       beginning. When you plug the power supply in, if  
10      that's inefficient, the whole system is going to  
11      be wasting electricity. So that's why we feel --  
12      I'm an incrementalist; let's go after the power  
13      supplies. External power supplies are easily  
14      separable. If there's a battery charging system  
15      downstream, so be it. Let's make the power  
16      supply, itself, efficient.

17          Chris handed out this diagram that  
18      explains things. There are certain systems where  
19      the power supply and the battery pack are all  
20      together in one. Those are complex, and their  
21      cycling is more complicated. And the way  
22      California has already defined what is a power  
23      supply, that's covered. Those are exempted.

24          So a lot of the concerns about if it's  
25      rechargeable we shouldn't do it. I think those

1 are already handled.

2 To make this real concrete, in our  
3 office we've got our own power meter. And just  
4 the speakers that come with your desktop computer,  
5 from a top name computer manufacturer like Dell or  
6 IBM, you plug it in, no music is coming out, but  
7 your computer's on, the speaker's on, it's 5  
8 watts. There's an on/off switch, so you think  
9 you're turning it off; it's 4.5 watts, 24 -- you  
10 know, the rest of the day. Every desktop computer  
11 in America has these.

12 COMMISSIONER ROSENFELD: So there's an  
13 on/off switch on one or both of the speakers, --

14 MR. HOROWITZ: Correct.

15 COMMISSIONER ROSENFELD: -- and you turn  
16 it off and it's still 4.5 watts?

17 MR. HOROWITZ: Correct.

18 COMMISSIONER ROSENFELD: And why the  
19 hell is that?

20 (Laughter.)

21 MR. HOROWITZ: That's why I'm here.  
22 Because the external power supply is not  
23 efficient, and that's why we need to address both  
24 active and standby modes.

25 MR. FERNSTROM: Well, if I can add

1 something, though. It's because the switch is on  
2 the secondary of the wall wart, rather than the  
3 primary.

4 COMMISSIONER ROSENFELD: Thank you.  
5 Now, we're even. Now you've answered one of my  
6 damn questions.

7 (Laughter.)

8 MR. HOROWITZ: The blue shirts agree  
9 again.

10 (Laughter.)

11 MR. HOROWITZ: To close this out, in all  
12 seriousness, we've heard a lot of discussion about  
13 how battery charging systems are different and you  
14 need to look at the whole system. Down the road I  
15 think we all agree that we need to come up with a  
16 test method that works for the various  
17 chemistries. And we're all committed to do that.

18 But let's bite off that big piece first,  
19 dealing with the external power supplies.

20 We've heard from numerous companies that  
21 they can meet both the active and the no-load  
22 levels. And if you design things with current  
23 technology there's little to no cost increment.  
24 And the cost effectiveness is proven. And your  
25 sales are pretty overwhelming, and I'm convinced

1       this isn't an R&D project. The products are  
2       available today.

3               So, I strongly support the Commission go  
4       ahead with its proposal as written, and that they  
5       not accept the exemption that AHAM is seeking.

6               Thank you.

7               PRESIDING MEMBER PFANNENSTIEL: Thank  
8       you, Noah. I think that as we move into our last  
9       category I just want to alert people that it is  
10      going on 3:30. So I'm going to ask, I don't know  
11      how many people we have on this last one, but I'm  
12      going to urge people to move and to not repeat if  
13      somebody else has already made the point. Except  
14      for John, of course, he's allowed to say anything  
15      he wants.

16              (Laughter.)

17              MR. WILSON: Keeping that in mind, I  
18      wanted to go back to ask Chris two questions  
19      quickly on power supplies. And Chris will be very  
20      short, as he always is.

21              On the question of problems of applying  
22      this definition in this flow chart, I think you  
23      and maybe Noah, who already sat down, were  
24      involved with the EPA process and discussions  
25      about, you know, fleshing out the draft three

1 definition.

2 I wonder if you could tell us whether  
3 any, did you encounter the confusion that Wayne  
4 was trying to describe in terms of trying to apply  
5 that definition?

6 MR. CALWELL: One of the interesting  
7 things about the flow chart is that it is much  
8 harder in text, in regulatory language, to  
9 describe a situation like this than to walk people  
10 through a visual.

11 So when we gave a presentation on the  
12 topic at a stakeholder workshop in San Francisco  
13 we first created the flow chart. Then we broke  
14 the flow chart into its individual components and  
15 showed photographic examples of products that did  
16 and didn't qualify in each case.

17 And so the intent was to leave no  
18 confusion whatsoever about where you fall, because  
19 you could match your product to photographic  
20 examples that were shown.

21 And so that particular presentation is  
22 available on the Energy-Star website, as well as  
23 on [efficientpowersupplies.org](http://efficientpowersupplies.org).

24 MR. WILSON: And on the question that  
25 Wayne raised about current versus voltage. I'm

1 still struggling to understand the issue. I  
2 wonder if you could very quickly explain that to  
3 us.

4 MR. CALWELL: Let me say it not in my  
5 words, but one of our colleagues in the field, Kay  
6 Luo, who works with Mike at Power Integrations.  
7 We asked her the same question. And here's what  
8 she said, which is very simple.

9 She said power supplies that charge a  
10 battery require constant current in order to  
11 charge the battery according to the manufacturer's  
12 specifications. Both linear and switching designs  
13 must achieve constant current.

14 This is typically achieved with  
15 circuitry on the output side of the power supply,  
16 and it's essentially the same circuitry regardless  
17 of whether you use an efficient or an inefficient  
18 power supply on the front side.

19 The fact that battery chargers have a  
20 constant current, constant voltage requirement,  
21 whereas simple external power supplies don't, is  
22 not a legitimate reason for excluding battery  
23 chargers from the proposed external power supply  
24 standards. There's no effect on the no-load state  
25 of a battery charger versus a basic supply,

1       because they're both sitting idle and they're  
2       performing no function while in the no-load state.

3               Then she concludes by saying when the  
4       battery charger is on and charging the constant  
5       current requirement does have a minor impact on  
6       efficiency, but the proposed efficiency levels  
7       already accommodate those needs.

8               In other words, they were already  
9       included in the data set that was analyzed. And  
10      when you look for the top 25 percent, or the top  
11      40 percent of that data set, it includes the  
12      losses that might be associated with that process.

13              And she finally concludes by saying it  
14      might be useful to point out that cell phone  
15      chargers charge batteries and the vast majority of  
16      them already meet the proposed specification,  
17      since most of them use switchers.

18              So, I defer to the extent possible to  
19      the people who actually make the products and have  
20      encountered these design challenges And try not  
21      to provide theoretical answers, if I can.

22              MR. WILSON: Good, thank you. I cede  
23      the remainder of my zero time to the Chair.

24              (Laughter.)

25              MR. TUTT: If we're done on this

1 particular group of appliances, let's move to the  
2 last group, which is audio and video consumer  
3 electronics. Michael, one last chance to talk  
4 here.

5 MR. MARTIN: Okay. In this case, if  
6 you're following along, the best place to follow  
7 is on page 5 of the October 7th informal draft.

8 The 45-day language includes compact  
9 audio products, digital versatile disc players,  
10 digital versatile disc recorders, digital  
11 television adapters, and integrated receiver  
12 decoders.

13 After discussions with industry  
14 representatives we're now recommending delaying  
15 the consideration of proposed standards for  
16 integrated receive decoders to a later date.  
17 That's what the space at the bottom of table U3  
18 is, what was there before we took it out.

19 Proposed standards are for standby  
20 except for digital television adapters, which  
21 include both active and standby components. And  
22 in the interest of time I'll say nothing more.

23 MR. TUTT: Thank you, Michael. Any  
24 comments on this issue? I have one blue card,  
25 Noah Horowitz.

1 MR. HOROWITZ: Thank you. Noah  
2 Horowitz, again, from NRDC.

3 We fully support the proposed level for  
4 DTAs, the digital tv adapters, as the universe is  
5 moving towards digital broadcasts of tv over the  
6 air. If you have an existing analog tv, you need  
7 this magic black box to convert the digital signal  
8 to analog.

9 There's been international consensus  
10 evolving around eight watts on, one watt standby.  
11 And that's what the CEC is proposing.

12 This is a huge opportunity, while there  
13 are very few of them bought in the U.S. now, once  
14 you can only get digital signals over the air,  
15 people that have one, two, three tv's in their  
16 home, they're going to have a choice to throw out  
17 their tv and buy a new digital tv, or buy that  
18 black box. And we think many people, for at least  
19 one of their tv's, maybe the one in their second  
20 bedroom or den, that's the way they're going to  
21 go.

22 So, we strongly encourage this. It's a  
23 big, one-time opportunity of fixed time. But I  
24 think we need to set the bar now to let  
25 manufacturers know this is what's needed.

1           The other models that are out there,  
2       some of them use twice the power compared to the 8  
3       watt/1 watt. And there are already models in  
4       Europe, in particular made by PaceMicro, that  
5       already meet the levels that are specified. So  
6       this, again, is something that can and is being  
7       done.

8           In regards to the more complicated  
9       boxes, those that have two-way functionality where  
10      you can order a pay-per-view professional  
11      wrestling match, or whatever, some of them even  
12      have the built-in DVD player like TIVO. These are  
13      complicated boxes and we agree with the  
14      Commission's decision not to regulate those now,  
15      because we don't have enough data. And there's  
16      some questions on test methods.

17          What we think should be done, though, is  
18      we've done, NRDC, with help from ECOS and Chris  
19      Calwell, we've taken some basic measurements. And  
20      these more complex boxes, they're using upwards of  
21      150 kWh per year. Some homes may have more than  
22      one of these boxes.

23          So we're starting to talk about half or  
24      more of a refrigerator just for the box on top of  
25      the tv. So this is an important and growing plug

1 load. Some of it onpeak, as well.

2 So what we think makes sense is to have  
3 the Commission require testing and publishing --  
4 providing the data to the Energy Commission. That  
5 we'll have all the data in one place and in a  
6 future proceeding we'll be in a position to all  
7 look at the same data and set a meaningful  
8 standard in the future.

9 MR. TUTT: Thanks, Noah.

10 MR. HOROWITZ: Any questions?

11 PRESIDING MEMBER PFANNENSTIEL: Thank  
12 you.

13 MR. HOROWITZ: I know it's getting late.  
14 Thank you.

15 MR. TUTT: We now turn to the point in  
16 our agenda where are there any other issues  
17 requested by attendees we should discuss today?

18 And if not, we can go to staff closing  
19 remarks. Do you have any, Michael?

20 MR. MARTIN: Yes. I'd like to thank  
21 everybody for coming. I'd like to find my notes  
22 where I wrote out what to say.

23 (Laughter.)

24 MR. WILSON: Tim, while Michael is doing  
25 that, let me note that we didn't have any comments

1 from the Electronics Industry Association on this  
2 last category of products. One reason for that  
3 was that we had a meeting with them about three  
4 weeks ago, and the reason you have this informal  
5 draft is that we had some discussions with them.  
6 We made some changes that I think mitigated their  
7 concerns.

8 The other reason is that the person who  
9 was here from the Electronics Industry Association  
10 had to leave at noon, so. But they also said they  
11 would submit some written comments later.

12 But I think we've taken care of most of  
13 their concerns.

14 MR. TUTT: Thanks, John.

15 PRESIDING MEMBER PFANNENSTIEL: Michael.

16 MR. MARTIN: Okay, well, I think we've  
17 now determined that there will be 15-day language.  
18 The aim is to have the adoption hearing on  
19 December the 1st. And the significance of 15-day  
20 language is that we have to have it published at  
21 least 15 days before anybody can act on it.

22 We also need to wait until after the  
23 November 3rd hearing before we issue it. So it  
24 looks as though the issuing dates for the 15-day  
25 language would be the second week in November.

1           The sooner you can get written comments  
2     in, the more we like it. They need to be sent to  
3     the dockets office, but it's certainly very  
4     helpful if you could send me electronic copies of  
5     it so we can make sure that everything gets  
6     included. The dockets office have a lot of  
7     different numbers and things can get lost.

8           And it also helps us to figure out what  
9     to do about it a little faster.

10          There is no restriction whatever in  
11     communicating with staff or Commissioners or  
12     advisers. And we would certainly invite you to do  
13     so. We've had a lot of very helpful communication  
14     back and forth from a great number of you. And  
15     it's very much appreciated.

16          And I think that's about all I have to  
17     say.

18          PRESIDING MEMBER PFANNENSTIEL: Thanks,  
19     Michael. I want to say thank you to everybody  
20     here. Special thank you to Michael Martin. I  
21     think he did a fabulous job of keeping it going,  
22     getting us a lot of good material to work with.

23          And actually to the rest of the staff  
24     who did a really fine job of putting this material  
25     together for us.

1 I want to thank everybody who was here  
2 as a participant, and I look around the room and I  
3 think virtually everybody in the room was a  
4 participant today. We did get a lot of  
5 information that will help us finalize what we  
6 have in front of us to work from.

7 I do encourage you to get written  
8 comments in. If there are items left unsaid; if  
9 there are points that either weren't made today,  
10 or that were made today but you want us to have  
11 them in writing, please do so. And, as Michael  
12 said, as soon as possible, I think, to be the most  
13 effective.

14 Commissioner Rosenfeld, do you have any  
15 closing comments?

16 COMMISSIONER ROSENFELD: I thank  
17 everybody again, including (inaudible).

18 PRESIDING MEMBER PFANNENSTIEL: Thank  
19 you, all, and we will be adjourned.

20 (Whereupon, at 3:35 p.m, the hearing was  
21 adjourned.)

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24  
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## CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter,  
do hereby certify that I am a disinterested person  
herein; that I recorded the foregoing California  
Energy Commission Hearing; that it was thereafter  
transcribed into typewriting.

I further certify that I am not of  
counsel or attorney for any of the parties to said  
hearing, nor in any way interested in outcome of  
said hearing.

IN WITNESS WHEREOF, I have hereunto set  
my hand this 1st day of November, 2004.

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